University of Alberta

Human Taphonomy at Khuzhir-Nuge XIV, Siberia

by

Angela Rose Lieverse ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts.

Department of Anthropology

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Human Taphonomy at Khuzhir-Nuge XIV, Siberia* submitted by Angela Rose Lieverse in partial fulfillment of the requirements for the degree of Master of Arts.

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Abstract

The purpose of this research is the investigation of human taphonomy at the Glaskovo (Late Neolithic/Early Bronze Age) cemetery site of Khuzhir-Nuge XIV, Siberia, in order to explain the unusual and highly variable condition of the human skeletal remains. The associations between three aspects of skeletal condition (completeness, fragmentation, and articulation) and eight (intrinsic and extrinsic) taphonomic factors are determined in order to identify those factors responsible for the variation in skeletal condition. Results indicate that extrinsic cultural factors (particularly mortuary practices), many of which have yet to be identified, account for most of the variable skeletal condition. Furthermore, the current understanding of Glaskovo mortuary protocol, as summarized in the literature, is not comprehensive enough to account for the extent of variability in skeletal condition evident at Khuzhir-Nuge XIV.

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Introduction

This thesis examines human skeletal taphonomy [1] at the Late Neolithic/Early Bronze Age Glaskovo cemetery site of Khuzhir-Nuge XIV, located on the west coast of Lake Baikal, Siberia. Its objective is the identification of the taphonomic factors responsible for the highly variable condition [2] of the site's human skeletal remains. This thesis is presented in the form of five chapters.

Chapter One: Archaeological Background and Research Objectives begins by outlining the geographic and archaeological context for this project. Next, it introduces the research problem, summarizes the generic mortuary protocols associated with the Neolithic and Early Bronze Age cultures of the Lake Baikal region, and describes in detail the research objectives for this thesis.

Chapter Two: Taphonomic Background and Research Hypotheses first presents a brief taphonomic literature review, with particular emphasis on archaeological and human taphonomy. Next, an overview of the taphonomic agents and processes affecting human skeletal material is provided. Finally, four hypotheses elaborating on the research objectives are presented.

Chapter Three: Materials and Methods describes the materials collected and outlines the fieldwork, data collection, and analytical methods employed. In addition, it explains the presentation of results obtained through analyses.

Chapter Four: Discussion of Results summarizes and discusses the results of analyses and then applies them to the research objectives through the hypotheses introduced in Chapter Two.

Chapter Five: Conclusions summarizes the research objectives and results, and presents areas for future consideration. This largely includes the investigation of extrinsic cultural taphonomic factors which have yet to be identified.

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[1] Taphonomy is the study of all aspects of the transition of organic material from the biosphere to the lithosphere (Gifford, 1981; Lyman, 1994: 3; Micozzi, 1991: 3; Olson, 1980; Schiffer, 1987: 260; Shipman, 1981: 5-6). The taphonomy of human remains (human taphonomy) is a recent specialized field which bridges the gap between archaeology and physical anthropology (Nawrocki, 1995).

[2] The term 'condition' has been adopted to refer collectively to the completeness, fragmentation, and articulation of human skeletal remains.

Chapter One: Archaeological Background and Research Objectives

1.1 Geographic Context and Early Research

The Cis-Baikal region of Siberia exhibits a very rich archaeological record documenting more or less continuous human occupation of the area for about the last 20,000 years (Weber, 1994, 1995). The region's numerous burial and habitation sites, producing substantial amounts of human skeletal and artifactual material, have facilitated extensive investigations into the adaptations of circumpolar foragers. Due to the scarcity of well-stratified dwelling sites and well-preserved burials of comparable age in North America and other circumpolar regions, the significance of the Baikal human skeletal and artifactual material is global (Weber, 1994, 1995).

Lake Baikal is located between 52° and 58° North latitude, in the southern part of central Siberia. In western literature, the geographic definition of the Cis-Baikal (or *Pred-Baikalie*) region has been outlined by Michael (1958: 5), and reiterated by Weber (1995). In addition to the shores and islands of the lake itself, the region includes the area west of the lake, including the Angara River basin from Irkutsk to Ust'-Ilimsk and the Upper Lena River basin from its source to Kirensk (see Figure 1.1). However, for the purpose of this thesis, the Cis-Baikal region will be referred to simply as the Lake Baikal region. Summers in the area are short, mild, and relatively dry, with a mean July temperature of about 20° C. Winters, on the other hand, are long and cold, with a mean January temperature of about -26° C and ground freezing to a depth of between 120 and 220 cm. Total precipitation in the area is about 400 mm per annum, including between 30 and 80 cm of snow cover (Weber, 1995). The Lake Baikal region is situated within a

southern taiga and transitional steppe-forest vegetation zone, dominated by coniferous and birch trees (Weber, 1995). It is located north of the southern border of the circumpolar boreal forest.

As early as the first half of the eighteenth century, investigations in the Lake Baikal region revealed archaeological finds (Michael, 1958: 7). However, it was not until the end of the nineteenth century that actual archaeological research was conducted in the area. Some notable early projects, according to Weber (1995), were the 1880's excavations of the Kitoi burial site by Vitkovskii, and the 1912-13 fieldwork at the habitation site of Ulan-Khada by Petri (see Khlobystin, 1969). During the early twentieth century, many scholars contemplating the history of the Lake Baikal region and its people attempted to construct syntheses for the area's Neolithic and Eneolithic periods. Some of these were contradictory, and many others were based on incomplete and dispersed material (Michael, 1958: 9, 25-28). Detailed information about these early models is provided by Michael (1958).

1.2 Culture History Models

Perhaps the most dominant figure in the study of the Siberian Neolithic is Aleksei Pavlovich Okladnikov (Michael, 1958: 7; Weber, 1994, 1995). Prior to his time, scholars were able to identify only two major periods, reflecting the absence and the presence of metal objects, from the abundant archaeological material (Michael, 1958: 7-9). In the 1950's, Okladnikov proposed, on the basis of typological classification, a new model of prehistoric cultural development in the Lake Baikal region (Michael, 1992; Michael 1958: 7; Weber, 1994, 1995). He had spent years re-examining previously collected

material and, throughout the 1920'and 1930's, had conducted extensive fieldwork of his own. Okladnikov's fieldwork focused on over 300 Neolithic and Early Bronze Age burials, but only a few habitation sites (Michael, 1958: 7-9; Weber, 1995). Unfortunately, because the habitation sites produced generally ambiguous information, Okladnikov's culture-history model was largely based on the burial sites (Michael, 1958: 8; Weber, 1994, 1995). His model proposed a four-stage unilinear progression through the Baikal Neolithic and Early Bronze Ages [1]. Okladnikov's four consecutive cultural stages were the Isakovo, Serovo, Kitoi, and Glaskovo cultures (Derevyanko, 1994; Haüsler, 1968; Michael, 1992; Okladnikov, 1959: 12-14, 27-29; Tolstoy, 1958; Weber, 1994, 1995). Each was described in terms of specific mortuary practices, technologies, subsistence patterns, and social structures (Weber, 1994, 1995).

Despite its dominant position in Lake Baikal archaeology, Okladnikov's model of unilinear cultural evolution exhibited numerous methodological and theoretical shortcomings (Weber, 1994, 1995). Its chronology was devised on the basis of relative dating techniques, specifically comparison of material culture typologies and mortuary rituals, rather than on absolute dating techniques, as most assemblages lacked stratigraphic control, and radiocarbon dating was not yet widely employed [2] (Chard, 1974: 60-62; Michael, 1992; Weber, 1994, 1995). Okladnikov initiated his chronological sequence with the Isakovo culture, because of its crude pottery and simple lithic manufacturing techniques, and terminated it with the Glaskovo culture, because of its employment of metallurgy. The Serovo culture, exhibiting similarities with both the Isakovo and the Kitoi, and the Kitoi culture, exhibiting the most similarities with the Glaskovo, were placed second and third, respectively (Weber, 1994, 1995). Absolute

chronology, particularly for the younger stages of the sequence, was determined through archaeological analogies with adjacent regions (Weber, 1994, 1995). Ethnographic analogies, for various cultural interpretations, were also extensively utilized. A detailed history of Okladnikov's model and the ensuing culture history debated is presented in Weber (1995).

Okladnikov's synthesis was well received by the Soviet archaeological community, and survived, with little modification, until recent times (Derevyanko, 1994; Weber, 1994). However, it was never without critics. The first, and perhaps most effective, challenge came from M.M. Gerasimov, a physical anthropologist and contemporary of Okladnikov. In 1955, Gerasimov countered many of the former's determinations and proposed an alternative culture-history model (Weber, 1994, 1995). Contrary to Okladnikov, he believed that the Isakovo and Serovo cultures exhibited no significant differences, and should thus be united as one culture, the Serovo. He also maintained, on the basis of similarities between the Serovo and Glaskovo cultures, that the latter immediately succeeded the former, simply representing a further cultural evolution. Finally, utilizing both archaeological and human skeletal evidence, Gerasimov determined that there were substantial biological and cultural differences between the earlier Kitoi and the later Glaskovo people, representing a distinct chronological hiatus between the two cultures (Weber, 1994, 1995). His resultant culture history sequence was Kitoi, Serovo (including Okladnikov's former Isakovo), and Glaskovo (Michael, 1992; Weber, 1995). Gerasimov's culture history model was significant not only because it placed the Kitoi at the beginning of the sequence, but also because it suggested a lack of biological and cultural continuity between the Kitoi and the Serovo-Glaskovo stages.

Unfortunately, because Gerasimov's model relied heavily on craniometric data and was less comprehensive in scope than that of Okladnikov, it was not further developed by archaeologists. Nevertheless, it set the stage for the culture history debate that surrounded Lake Baikal archaeology for the next several decades (Weber, 1994. 1995).

Following Gerasimov's initial critique of Okladnikov's synthesis, a number of scholars conducted their own investigations and proposed additional models of culture historical evolution during the Lake Baikal Neolithic and Early Bronze Ages. The ensuing controversy focused primarily on the chronological position, origin, and role of the Kitoi culture, but also on the correlation of the burial and habitation complexes for the region (Weber, 1995). Some of these scholars were L.P. Khlobystin, G.V. Sinitsyna, N.A. Savel'ev, G.M. Georgievskaia, V.S. Zubkov, and O.I. Goriunova (Weber, 1995). These alternative models, varying solely in terms of the succession and contemporaneity of the four developmental stages, were all similar in that they proposed continuous habitation of the Lake Baikal region throughout the Neolithic and Early Bronze Ages (Weber, 1995).

Over the last several decades, extensive archaeological research has been conducted in the Lake Baikal region, and a number of alternative culture history models have been proposed (Weber, 1994, 1995). Nevertheless, until recently, Okladnikov's synthesis remained largely unchallenged at the forefront of the controversy, while the others had only limited impact on the archaeological community. Okladnikov's model was a remarkable advancement for Neolithic/Early Bronze Age archaeology in the Lake Baikal region, regardless of its shortcomings, because it represented the first and most effective classification and explanation of the variable and abundant archaeological

material accumulated in the region (Weber, 1994). Subsequent syntheses were typically much narrower in scope, and with few exceptions, focused largely on chronology. Compared with Okladnikov's synthesis, most of these alternative models were viewed as much less comprehensive and even speculative (Weber, 1994). In fact, even after radiocarbon dating distinctly contradicted Okladnikov's sequence, there were no major attempts at its revision (Weber, 1994).

Okladnikov's model did not only heavily influence Russian notions of the Lake Baikal Neolithic and Early Bronze Ages, but it also monopolized non-Russian perceptions. Until recently, western understanding of the prehistory of the Lake Baikal region was predominantly shaped by a few Russian translations (for example, Okladnikov, 1959), and the works of several western scholars (for example, Michael, 1958, 1992; Tolstoy, 1958; Chard, 1974) who basically reiterated Okladnikov's interpretations. Unfortunately, as most of these dated to before 1970, they did not reflect the present state of archaeological research in the area (Weber, 1995). However, recent research in the Lake Baikal region has finally overturned Okladnikov's synthesis and rejuvenated the culture history debate among Russian and non-Russian scholars, alike (Weber, 1995).

1.3 Recent Developments

A.W. Weber (University of Alberta) has recently introduced a re-evaluation and revision of the previously proposed models of unilinear cultural development in the Lake Baikal region, including that of Okladnikov. His interpretation, based on the radiocarbon dating revolution and the wealth of both previously and newly excavated material in the

area, has largely invalidated Okladnikov's long-accepted model (Weber, 1995). Weber proposed the sequence of Kitoi, Serovo (including Okladnikov's former Isakovo), and Glaskovo, with a bio-cultural hiatus separating the Kitoi and Serovo cultures (Weber, 1995). Weber's Kitoi culture, dating to between 6800 and 4900 BC, originated in the late Mesolithic and demonstrated continuity with earlier cultures. Contrary to previously held beliefs, the Kitoi exhibited extensive geographic and chronological distribution, and initiated the Neolithic period with the introduction of pottery around 5800 BC. According to Weber, population densities in the region declined significantly towards the end of the Kitoi period, and remained low for the next 700 to 1000 years (Weber, 1995). The Serovo culture, dating from 4200 to 3000 BC, was quite distinct, both biologically and culturally, from the former. The period was defined by increasing population densities, an evolved foraging economy, advanced technology, and distinct mortuary ritual (Weber, 1995). Weber's Glaskovo culture, dating to between 3400 and 1700 BC, represented a further evolution of the preceding Serovo culture. The Glaskovo period, spanning the Late Neolithic and Early Bronze Ages, was defined by the introduction of metallurgy, as well as an advancement in the technology, subsistence patterns, and mortuary ritual initiated by the Serovo (Weber, 1995).

Weber's model has proven to be significant not only because it successfully overturned Okladnikov's long-accepted synthesis, but also because it disputed continuous cultural development in the Lake Baikal region. The most important issues broached by Weber were the placement of the Kitoi culture at the beginning of the sequence, and the disclosure of the fifth millennium BC bio-cultural hiatus separating it from the later Serovo (Weber, 1995). According to Weber, the discontinuity was visible in the

archaeological record by the distinct paucity of burial sites dating to this period (fifth millennium BC), and by the appearance, with the origin of the Serovo culture, of physically distinct people and several technological innovations (Weber, 1995). This apparent transitional period has instigated much research and controversy regarding the prehistory of the area. Thus, the new model has dramatically shifted the focus of the Lake Baikal culture history debate from the 'origin of the Kitoi culture' to the 'decline of the Kitoi, the origin of the Serovo, and the Serovo-Glaskovo continuity' (Weber, 1995).

The recent introduction of Weber's culture history model has created an entirely new set of research problems to be addressed. If the Early to Middle Neolithic bio-cultural hiatus is an authentic phenomenon, and not simply an artifact of research, it must be explained. In the early 1990's, a multidisciplinary, international, and long-term research project was initiated by Weber to provide a more comprehensive understanding of this discontinuous transition (Weber, 1998; Weber *et al.*, n.d.). The project aims to examine the cultural and biological characteristics of both the pre- and post-hiatus populations (the Kitoi and the Serovo-Glaskovo, respectively) through the analysis of previously and newly excavated human skeletal, artifactual, and faunal material (Weber *et al.*, n.d.). The long-term goal of this project is the elucidation of the cause and nature of the bio-cultural discontinuity in the Lake Baikal region, including the decline of the Kitoi culture, the origin of the Serovo, and the nature of the Serovo-Glaskovo continuity. This, in turn, will help to facilitate new insights into the progression of cultural development of ancient Siberian foragers, particularly during the Neolithic period, as well as that of circumpolar foraging peoples as a whole. (Weber, 1994, 1995; Weber *et al.*, n.d.).

Three possible scenarios have been offered by Weber to explain the nature of the bio-cultural hiatus during the Lake Baikal Neolithic (Weber, 1995). The first radically suggests the complete disappearance of the Kitoi people at the beginning of the fifth millennium BC and re-population by the immigrant Serovo people 700 to 1000 years later. The second scenario maintains that the Kitoi population decrease was substantial, but not complete, and that recovery occurred near the end of the fifth millennium. Finally, the third proposes a combination of the first two scenarios: a substantial Kitoi population decrease at the beginning of the fifth millennium BC and subsequent recovery with the participation of a new immigrant population (the Serovo) 700 to 1000 years later (Weber, 1995). According to Weber, there has been some indication that the end of the fifth millennium hiatus was characterized by both immigration and local recovery (Weber, 1995). Evidently, much remains to be learned about the nature of this discontinuity.

Based on the current state of research in the Lake Baikal region, Weber has recently proposed four hypotheses concerning the cause(s) of the apparent discontinuity (Weber, 1998). The first is: "causes and processes of the observed bio-cultural discontinuity are independent of environmental change affecting the area" (Weber, 1998). As there have been some indications that the region was experiencing an environmental transition during the time of the hiatus (between 6000 and 3000 BC), it must be ascertained how these climatic fluctuations may have affected small-scale foraging adaptations (Weber, 1998). The second hypothesis is: "the Early and Middle Neolithic groups [Kitoi and Serovo, respectively] had structurally different demographic characteristics" (Weber, 1998). Recent investigations by Link (1996, 1998), based on

human skeletal remains from one Kitoi and one Serovo-Glaskovo cemetery, suggested that there were substantial demographic differences between the pre- and the post-hiatus populations. More research must be conducted in order to determine the significance of these early patterns (Weber, 1998). The third hypothesis is: "Kitoi and Serovo-Glaskovo groups differed from each other in mobility patterns" (Weber, 1998). Preliminary analyses indicating distinct residential and foraging mobility patterns exhibited by the pre- and post-hiatus populations must be further examined (Weber, 1998). Finally, Weber's fourth hypothesis is: "social relations and world views were very different among the pre- and post-hiatus cultures" (Weber, 1998). Recent data suggest contrasting gender relations, community interactions, and natural resource perception, all of which must be investigated thoroughly (Weber, 1998).

In order to achieve the long-term goals of this research project, several courses of investigation are being pursued. Thus, the project involves a number of scholars and graduate students whose intent is to analyze the comprehensive Lake Baikal databases, including both newly and previously excavated material, for subsistence, dietary and mobility patterns, health and paleodemography, genetic affinity, mortuary ritual, and social relations and world views (Weber, 1998). Mortuary data play a prominent role in this endeavor not only because burial sites are relatively abundant in the Lake Baikal region, but also because such sites generate diverse date sets. These, in turn, can be effectively utilized to reconstruct subsistence, dietary and mobility patterns, health and paleodemography, genetic affinity, mortuary ritual, and social relations and world views. (O'Shea, 1984: 1-3; Weber *et al.*, n.d.).

Although hundreds of burials in the region have been excavated over the last century, there remains a distinct imbalance regarding their spatial and cultural distribution, as well as the quality of their data (Weber *et al.*, n.d.). For example, the 'best samples' thus far have been obtained from the Angara River Valley, while the shores of the lake itself and the banks of the Upper Lena River have been somewhat neglected (Weber *et al.*, n.d.). In an attempt to amend the existing disparity among mortuary data, archaeological fieldwork since 1997, conducted by joint Canadian-Russian teams, has focused on the site of Khuzhir-Nuge XIV, which is located directly on shores of Lake Baikal (Weber *et al.*, n.d.). The research comprising this thesis is part of Weber's larger multidisciplinary project, and was conducted at Khuzhir-Nuge XIV during the 1997 and 1998 field seasons.

Khuzhir-Nuge XIV is a Late Neolithic/Early Bronze Age Glaskovo cemetery located directly on the west coast of the 'Little Sea' region of Lake Baikal and west of Ol'khon Island (see figure 1.1). The site is situated on the southern face of a hill ascending from a shallow cove of the 'Little Sea.' It is positioned between two large parallel bedrock ridges, which are about 150 m apart and run east-west (perpendicular to the line of the slope). The site, which measures about 300 m east-west, consists of approximately 70-80 graves. The graves are visible on the surface as more or less oval arrangements, ranging in size from 2-3 by 3-5 m, of flat-lying 'paving' slabs [3] (Weber *et al.*, n.d.). Thirty-six graves have been excavated thus far. Five were test-excavated in 1993 by Olga I. Goriunova, and 31 others, yielding 36 individuals, were excavated in 1997 and 1998 by joint Canadian-Russian archaeological teams led by Weber and

Goriunova. Two more field seasons, 1999 and 2000, are required to complete excavation at Khuzhir-Nuge XIV.

1.4 Research Objectives

The 1997 and 1998 excavations at the Glaskovo cemetery site of Khuzhir-Nuge XIV revealed distinct variability in the condition [4] of the skeletal remains. However, of even more interest is the fact that this variable skeletal condition was not unique to Khuzhir-Nuge XIV, but rather was observed at another Glaskovo cemetery site by another investigator, David Link. Link (1996, 1998) conducted an in depth investigation of the paleopathology and paleodemography of two Cis-Baikal cemetery sites, Lokomotiv and Ust'-Ida I, located along the Angara River (see Figure 1.1). Lokomotiv contained Kitoi burials, while Ust'-Ida I contained Serovo and Glaskovo burials. According to Link (1998):

> An interesting and valuable feature of the Lokomotiv human osteological collection is its consistently good preservation for its age (7000 to 7500 years old). Observability among mature and immature individuals is such that, in most cases, data collection dependent on surface characteristics of bones and teeth is uninhibited by deterioration due to postmortem effects.
>
> The condition of the Ust'-Ida I collection is also overall good for its age (5000 to 6000 years old), but less consistently so. Most skeletons are preserved well enough to be reliable sources of data, and a few are outstanding. A small number, however, have eroded bone surfaces that restrict data collection, especially for the purposes of paleopathological analysis.

What is most interesting about Link's (1998) observations is the fact that the archaeologically older skeletal material (from Lokomotiv) exhibited better and more consistent condition, while the archaeologically younger material (from Ust'-Ida I)

exhibited poorer and more inconsistent skeletal condition. Link (1996, 1998) attempted no explanation of this phenomenon, and other data regarding Kitoi and Serovo-Glaskovo burials also provided no clues. Thus, a legitimate question to ask is why the (archaeologically) younger skeletal material exhibited a poorer and more variable pattern of skeletal condition than the (archaeologically) older material. What factors can account for the inconsistent skeletal condition exhibited by the Serovo-Glaskovo burials? These questions were taken into consideration prior to the 1997 and 1998 excavations at Khuzhir-Nuge XIV, and specific methodology was developed in order to address them.

Of the wide array of taphonomic agents affecting human remains, people are the most significant (Henderson, 1987; Lyman, 1994: 411; Nawrocki, 1995). Cultural (particularly mortuary) practices generally influence which, and to what extent, other taphonomic agents affect the remains (see Chapter Two, Section 2.2). Thus, in order to explain those factors accounting for skeletal condition, the mortuary protocols of the Kitoi and Serovo-Glaskovo cultures must be examined.

The following is a brief review of each culture, with a focus on mortuary practices. Although Okladnikov's model has recently been revised, the general characteristics of the Kitoi, Serovo (including the former Isakovo) and Glaskovo mortuary protocols have remained essentially the same (Weber, 1995). Unfortunately, because these descriptions represent a predominantly culture-historical perspective, they offer limited insight concerning taphonomic factors.

In the Okladnikov account, the Kitoi culture was represented by 42 burials from eight localities (Weber, 1994, 1995). Technological characteristics included the use of nephrite in lithic tool production, the development of a remarkable bone tool tradition,

the appearance of shaft straighteners, and the utilization of fishing gear, such as composite hooks and harpoons (Okladnikov, 1959: 13-14; Tolstoy, 1958; Weber, 1994, 1995). Pottery was only rarely recovered from Kitoi graves (Weber, 1995). Kitoi mortuary ritual, characterized by the absence of stone slabs, the extensive use of red ochre, and the high prevalence of fishing paraphernalia among grave goods, was distinct from that of the Serovo and Glaskovo (Derevyanko, 1994; Haüsler, 1968; Okladnikov, 1959: 13-14; Okladnikov and Konopatskiy, 1974-75; Tolstoy, 1958; Weber, 1994, 1995). Although burials were generally in extended body position, they were highly variable in terms of type (single versus multiple), body orientation, and quantity and content of artifactual goods (Michael, 1958: 67; Weber, 1994, 1995). In addition, burials often lacked skulls (Weber, 1994, 1995).

The Serovo (including the former Isakovo) culture was associated with about 50 graves from over 18 localities. It was notable for its technological advances and resulting population growth, and for its egalitarian society, as indicated by its almost complete lack of mortuary variability (Okladnikov, 1959: 13; Weber, 1994, 1995). Serovo technology was characterized by the composite wood and bone bow and fishing paraphernalia such as harpoons, fishhooks, and carved fish lures (Derevyanko, 1994; Okladnikov, 1959: 13; Weber, 1994, 1995). Pottery vessels of this period generally exhibited parabolic or oval cross-sections, rounded bottoms, net-impressed surfaces, and lugs for suspension (Okladnikov, 1959: 13; Tolstoy, 1958; Weber, 1995). Serovo mortuary ritual was particularly consistent in terms of body position, orientation, and grave goods. Graves were generally single and extended interments in stone-filled pits, with associated artifacts consisting of utilitarian items such as pottery, bows, polished stone adzes, spears,

bone points, scrapers and stone knives, as well as non-utilitarian items such as pendants made of bore tusk or deer teeth (Haüsler, 1968; Michael, 1958: 57; Weber, 1994, 1995). The uniformity of Serovo graves included all individuals, regardless of age or sex (Michael, 1958: 57; Okladnikov, 1959: 13; Weber, 1994, 1995).

The Glaskovo culture was represented by approximately 200 graves from both the Cis-Baikal and the Trans-Baikal (east of the lake) regions (Michael, 1958: 10-11; Weber, 1994, 1995). The Glaskovo stage was thought to represent yet a further evolution of those cultural trends initiated by the Serovo: increasing reliance on aquatic resources, technological advancements, population growth, and decreasing social equality, particularly regarding female social positions (Okladnikov, 1959: 27-28; Okladnikov and Konopatskiy, 1974-75; Weber, 1994, 1995). An important innovation of this period was the introduction of copper, and later bronze, objects into the material culture. Other technological progressions included advanced harpoons, two- and three-pronged fishing spears, fish bone amulets, and smaller arrowheads, all indicative of the increasing importance of aquatic resource exploitation (Okladnikov, 1959: 27-28; Tolstoy, 1958; Weber, 1994, 1995). Glaskovo pottery, only occasionally recovered from graves, exhibited oval- and miter-shaped cross-sections and surfaces decorated with horizontal motifs and 'Pearl' [5] ornamentation (Tolstoy, 1958; Weber, 1995). Mortuary ritual generally consisted of extended, sometimes semi-flexed, and very rarely, squatting, interments resting in the bottom of stone-filled pits, covered with elongated arrangements of paving stones. Cremations and multiple burials were not uncommon (Tolstoy, 1958; Weber, 1994, 1995). Grave goods reflected typical Glaskovo material culture: fishing

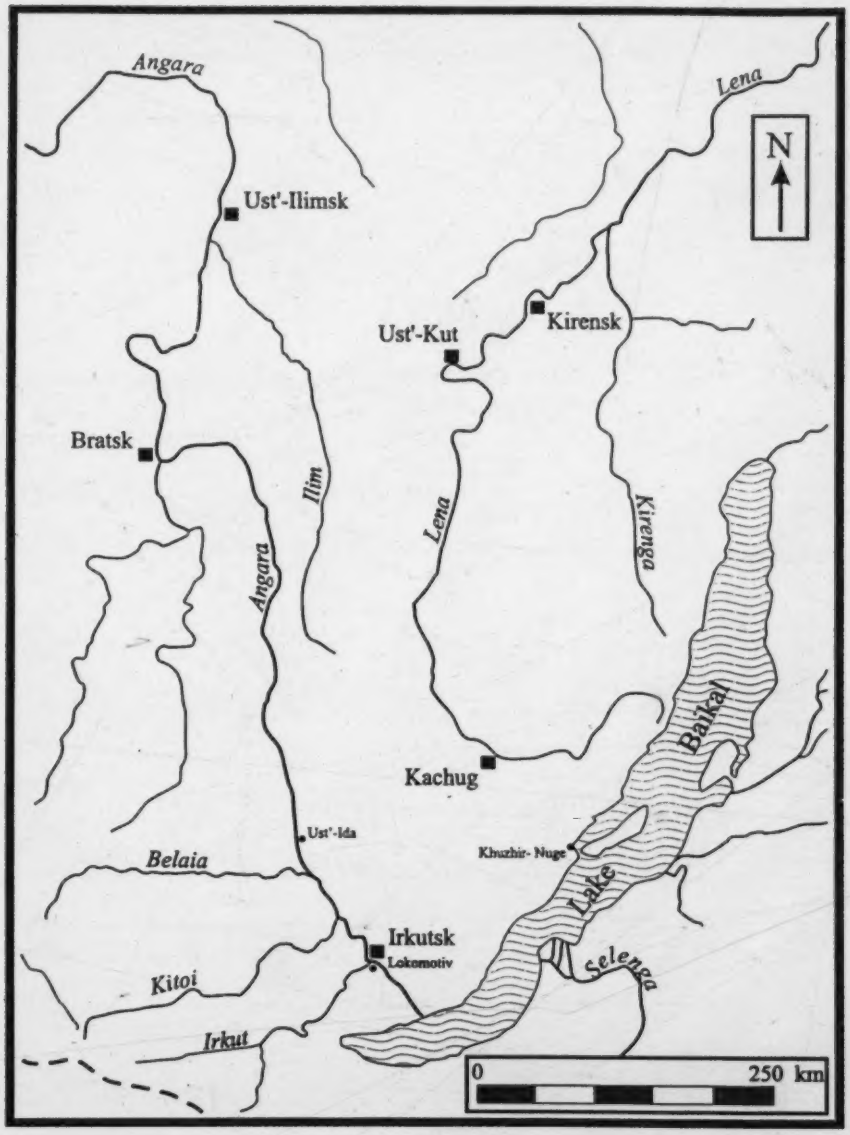
gear and hunting tools for males, and domestic paraphernalia and ornaments for females (Weber, 1995).

Because the fieldwork comprising this thesis was conducted at the Glaskovo cemetery site of Khuzhir-Nuge XIV, the significance of the description of Glaskovo mortuary protocol must be emphasized. The descriptions of mortuary protocol characterizing each culture (see above) are generic, rather than specific. The Glaskovo mortuary protocol, for example, represents those characteristics most commonly observed among Glaskovo burials, but not necessarily those observed in any particular burial. Thus, mortuary variation is reflected by the variable distribution of those characteristics among Glaskovo burials, including those at Khuzhir-Nuge XIV. In accordance with the existing composite description (Weber, 1994, 1995), five observed dimensions may account for the extent of Glaskovo mortuary variation: 1) body preparation (inhumation with or without cremation), 2) body position (extended versus semi-flexed versus squatting), 3) interment type (single versus multiple), 4) size and shape of paving stone arrangements, and 5) type and extent of grave goods. No other variable factors have been observed or accounted for in the literature. Thus, accepting the description of Glaskovo mortuary protocol, variability observed at Khuzhir-Nuge XIV should be accounted for by variation among these five observable cultural factors.

The objective of this thesis is to identify the taphonomic factors responsible for the inconsistent condition of the human skeletal remains at Khuzhir-Nuge XIV. Variation in skeletal condition, other than that explained in terms of differences in archaeological age or intrinsic skeletal characteristics, should reflect variation in the respective taphonomic environments. Furthermore, this research will illustrate that the

taphonomic environments affecting the skeletal material at Khuzhir-Nuge XIV are the products of cultural (particularly mortuary) practices. Thus, under ideal circumstances, the variable condition of the skeletal remains which is not accounted for by archaeological age or intrinsic characteristics should be fully explicable in terms of cultural taphonomic factors. If the existing Glaskovo mortuary protocol is all-inclusive, variation within it, specifically regarding the five aforementioned factors, will be reflected in the variable skeletal condition. If not, variability in the protocol will be unable to account for that exhibited by skeletal condition, and the search for additional taphonomic factors will continue. This thesis will thus utilize the inconsistent condition of the human skeletal remains at Khuzhir-Nuge XIV to define new, as yet unidentified, dimensions of variability in Glaskovo mortuary protocol.

Figure 1.1
Map of the Lake Baikal Region



[1] Unlike the case in western archaeology, the Neolithic and Bronze Ages of Siberia are *not* characterized by agriculture and sedentism, but are rather defined by the appearance of pottery and the introduction of copper objects, respectively (Chard, 1974: 63; Weber, 1994, 1995).

[2] Radiocarbon dating was gradually integrated into the archaeology of the Lake Baikal region throughout the 1970's (Weber, 1995).

[3] Although these are frequently referred to as 'paving' stones or slabs, recent research at Khuzhir-Nuge XIV suggests that they are actually the remnants of cairns, rather than flat grave pavings (Ross, 1998).

[4] The term 'condition' has been adopted to refer collectively to the completeness, fragmentation, and articulation of human skeletal remains.

[5] 'Pearl' ornamentation refers to spherical protrusions on the exterior surface of a vessel, implemented from within (Weber, 1995).

Chapter Two: Taphonomic Background and Research Hypotheses

2.1 Literature Review

There are three objectives of this literature review: 1) to outline the origin of 'taphonomy,' by briefly summarizing 'taphonomic' research (both archaeological and paleontological) prior to Efremov's coining of the term in 1940 and by describing his intention for the discipline he founded; 2) to examine the development of archaeological taphonomy in the twentieth century, particularly since its 'reawakening' in the 1960's; and 3) to discuss the recent development of human taphonomy within the realm of archaeology.

2.1.2 The Origin of 'Taphonomy'

The term 'taphonomy' was introduced to the world by Russian paleontologist I.A. Efremov, of the Soviet Academy of Sciences, Moscow, in a 1940 publication of the *Pan-American Geologist*. It was derived from the Greek words *taphos* (tomb or burial) and *nomos* (law or system of laws), and literally means "the laws of burial" (Garland and Janaway, 1989; Gifford, 1981; Koch, 1989: 2; Lyman, 1994: 1; Marshall, 1989; Micozzi, 1991: 3; Nawrocki, 1995; Shipman, 1981: 5-6; Solomon, 1990). Since then, and particularly since the 1970's, taphonomy has been incorporated into numerous fields of study other than paleontology, including bioarchaeology, ethnoarchaeology, historical archaeology, paleoanthropology, physical anthropology, paleopathology, botany, zoology, geology, and forensic medicine (Gifford, 1981; Koch, 1989: 1; Lyman, 1994: 1; Nawrocki, 1995; Micozzi, 1991: vi; Olson, 1980; Solomon, 1990). Although various definitions of taphonomy exist in the literature (for example, see Behrensmeyer and

Kidwell, 1985; Bonnichsen, 1989a; Olson, 1980; Shipman, 1981: 6), it is most frequently defined as the study of the transition of organic material, in all respects, from the biosphere to the lithosphere (Garland and Janaway, 1989; Gifford, 1981; Lyman, 1994: 3; Micozzi, 1991: 3; Nawrocki, 1995; Olson, 1980; Schiffer, 1987: 260; Shipman, 1981: 5-6; Solomon, 1990).

Although Efremov coined the term 'taphonomy,' he was certainly not the first to investigate the postmortem transformation of organic remains (Gifford, 1981; Lyman, 1994: 13; Olson, 1980; Solomon, 1990). In fact, 'taphonomy' has a history rooted in archaeology, particularly zooarchaeology, as well as paleontology (Lyman, 1994: 12-13). A broad range of 'taphonomic' topics were investigated during the nineteenth century, and much of this concerned the identification of those agents and processes that had created marks on faunal material discovered in archaeological contexts (Lyman, 1994: 13). For example, in 1823, Buckland noticed that an ox bone gnawed by a hyena exhibited identical damage to that recovered from an archaeological site; in 1833, Tournal extended the analogy to incorporate carnivores in general, rather than solely hyenas (Lyman, 1994: 13). Unfortunately, 'taphonomy' almost completely disappeared from the archaeological literature during the first half of the twentieth century, predominantly existing in the paleontological literature. Lyman (1994: 15-16) speculates that this may have been the result of a "shift from the nineteenth-century concern for dealing with a human presence in the archaeological record to the [early] twentieth-century focus on establishing temporal relations of archaeological collections." During this period, it was generally thought that humans, rather than other agents, were

responsible for the 'taphonomic' processes affecting faunal material in the archaeological record (Lyman, 1994: 16).

The history of 'taphonomy' is also rooted in paleontology, which was established as a scientific discipline in the early nineteenth century (Lyman, 1994: 16-17; Solomon, 1990). Since then, numerous 'taphonomic' studies have been conducted by paleontologists. 'Taphonomy,' during the early twentieth century, continued to be a focus of paleontological research, which was dominated by the German School (Gifford, 1981; Koch, 1989: 2; Lyman, 1994: 17; Solomon, 1990). In the 1920's, German paleontology underwent a transition from the earlier descriptive orientation to a more problem-solving one, which implemented actualistic [1] research (Koch, 1989: 2; Solomon, 1990). This resulted in the introduction of actuopaleontology (*Aktuopaläontologie*), a sub-discipline of paleontology, by Richter in 1928 (Gifford, 1981; Koch, 1989: 2; Lyman, 1994: 16; Solomom, 1990). Actuopaleontology, incorporating uniformitarian principles, was defined as "the science of the origin and present-day mode of formation of future fossils" (Lyman, 1994: 16). The approach was later criticized by Efremov (see below; Solomon, 1990). The German School of paleontology also introduced 'biostratinomic' and 'diagenic' studies. Weigelt coined the term 'biostratinomy' in 1927 to refer to those transformations spanning the period between an organism's death and its final burial (Lyman, 1994: 16; Koch, 1989: 2; Solomon, 1990). Later, Müller, who had presented a synthesis of paleontologically related 'taphonomic' research during the first half of the twentieth century, introduced the term 'diagenesis' to refer to those transformations between an organism's final burial and its recovery (Gifford, 1981; Lyman, 1994: 16).

In 1940, Efremov not only defined and described the term 'taphonomy,' but he also critiqued contemporary paleontological works, particularly those of the pioneering German School (Lyman, 1994: 16; Solomon, 1990). He was displeased with three aspects of paleontology: 1) the emphasis of actuopaleontology on living systems; 2) actuopaleontology's disregard for sedimentary/geological processes; and 3) the name itself (Solomon, 1990). Efremov felt that the sub-discipline of actuopaleontology was much too narrow in its approach to the paleontological record, and that his own approach could not be accommodated within its confines (Solomon, 1990). According to Solomon (1990), the definition of taphonomy, as explicated by Efremov, is " the seeking of *laws* that describe the processes by which the remains of [organisms] become incorporated into the lithosphere, with equal emphasis given to the geological and biological formation of the site." Thus, taphonomy differed from actuopaleontology in two ways: 1) it sought 'laws' to explain *all* the agents and processes involved in the postmortem transition of organisms (incorporating both biostratinomy and diagenesis); and 2) it was not to be divided into separate areas of study (Gifford, 1981; Lyman, 1994: 16; Olson, 1980; Solomon, 1990). What is most striking about Efremov's taphonomy is its strict nomothetic (law seeking) structure (Gifford, 1981; Koch, 1989: 2; Solomon, 1990). He sought a theoretical framework characterized by 'defined' laws (rather than 'general' laws) [2] for every postmortem stage affecting an organism (Koch, 1989: 3, 5; Solomon, 1990). This approach is generally not applicable to 'soft' historical sciences, such as archaeology and paleontology, because the conditions operating in the past cannot be known with any degree of certainty (Olson, 1980; Shipman, 1981: 10-11; Solomon, 1990) and thus observed 'defined' laws cannot be "extended beyond the data from which

they were drawn" (Solomon, 1990). In fact, decades later, there are still no 'laws' in taphonomy (Behrensmeyer and Hill, 1980: 300; Bonnichsen, 1989b; Koch, 1989: 5; Olson, 1980; Solomon, 1990).

Initially, Efremov's work was less influential than that of the German School (Koch, 1989: 3; Solomon, 1990). However, within two decades, it was adopted by the archaeological and paleontological circles, while German actuopaleontology became more or less obsolete (Gifford, 1981; Olson, 1980; Koch, 1989: 3; Solomon, 1990). This may have been partly attributable to the efforts of Olson (1957, 1962), who introduced Efremov's works to North American paleontologists (Koch, 1989: 3). It may also have been due to the fact that Efremov's 1940 paper was published in English, in a reputable American geological journal, while most previous 'taphonomic' works had only been published in German (Lyman, 1994: 16; Solomon, 1990). Weigelt's comprehensive work, *Recent Vertebrate Carcasses and Their Paleobiological Implications*, for example, was only translated into English in 1989 (Solomon, 1990). Furthermore, Efremov's intent was to seek 'defined' laws, characteristic of the highly-regarded 'hard' sciences, while actuopaleontology, sought only the 'general' laws, of 'soft' sciences (Solomon, 1990). Historically, it has not been uncommon for 'lower' ranked 'soft' sciences to attempt to improve their status by adopting the methodology of 'hard' sciences (Gould, 1986; Solomon, 1990). Solomon (1990) suggests that taphonomy's recognition may also be partly attributable to this link with the highly-esteemed 'hard' sciences. However, the work of the German School has not been completely neglected. Many scholars today (particularly European scholars) continue to divide taphonomy into two subsidiary disciplines: biostratinomic studies and diagenetic studies, reflecting those transformations

spanning the period between death and final burial, and between final burial and recovery, respectively (Gifford, 1981; Micozzi, 1991: 3). Unfortunately, the terminology of the latter division is somewhat inappropriate, as diagenesis, or the transformation of organic material to mineral, can occur prior to final burial (Gifford, 1981).

2.1.2 Archaeological Taphonomy in the Twentieth Century

Taphonomic research within the realm of archaeology was rare during the first half of the twentieth century (Koch, 1989: 3; Lyman, 1994: 15-16, 20). However, a few early studies deserve mention. Dubois' 1891 discovery of *Pithecanthropus erectus* created much controversy, partly because he associated a 'primitive' skull cap with a modern-looking femur, even though the two were found 15 meters apart (Koch, 1989: 3; Nelson *et al.*, 1992: 233-234). In support of Dubois' assertion that the two bones originated from the same individual, Duckworth (1904) made observations that a horse skeleton could be significantly dispersed by small streams (Koch, 1989: 3; Lyman, 1994: 20). In 1910, Martin conducted experiments in bone breakage, in an attempt to identify patterns produced by hominids (Koch, 1989: 3; Lyman, 1994: 20). Several other studies concerning broken or worked bone were also conducted by (primarily French) archaeologists through the1930's (Koch, 1989: 3). The works of Breuil (1938, 1939) and Pei (1932) are perhaps the best known early taphonomic studies conducted by archaeologists (Koch, 1989: 4). They involved the discovery, along with 'Peking Man,' of a large collection of marked and fragmentary faunal material at Zhoukoudian. While Breuil believed that the faunal damage was caused by hominid employment of an extensive bone and antler tool industry, Pei maintained it was the result of natural (biological and geological) agents (Koch, 1989: 4; Lyman, 1994: 20). The controversy is

still unresolved. Breuil also investigated the differing fracture patterns exhibited by fresh, dry, and fossil bone (Koch, 1989: 4). Unfortunately, the impact most of these early studies had on archaeology, particularly that in North American, was limited (Lyman, 1994: 20). This may be the result, at least in part, of North American archaeology's focus on culture history during the first half of the twentieth century (Lyman, 1994: 20).

The significance of taphonomy was clearly demonstrated through the work of Raymond Dart (1949, 1956, 1957a, 1957b, 1958, 1959, 1960), which served as a catalyst for contemporary taphonomic research in archaeology (Koch, 1989: 4; Lyman, 1994: 20-21). Besides the controversial issue of Australopithecines as human ancestors, Dart focused on the associated South African faunal material (Koch, 1989: 4; Lyman, 1994: 20). He maintained that fractured (particularly spirally-fractured) bones were the result of an extensive *osteodontokeratic* (bone-tooth-antler) Australopithecine tool tradition (Koch, 1989: 4; Lyman, 1994: 20-21). He also attributed the differential accumulation of various skeletal elements (for example, unexpectedly high frequencies of distal humeri) to hominid activity (Koch, 1989: 4). Dart's assertions, generally unaccepted today, were nevertheless provocative and stimulated contemporary researchers to find more suitable explanations (Koch, 1989: 4; Lyman, 1994: 20-21). He has frequently been credited with reawakening archaeology's interest in taphonomy, beginning in the 1960's (Koch, 1989: 4; Lyman, 1994: 20-21). This revived taphonomic interest reflected the shift of archaeological focus, particularly in North America, from culture-history to human behavior (Lyman, 1994: 26).

The renewed interest in archaeological taphonomy was intensified by research in the Old Crow River Basin, Yukon Territory (Koch, 1989: 4; Lyman, 1994: 21). The

1966 discovery, and subsequent 1973 report (Harington, 1973, 1975; Irving and Harington, 1973), of a 27,000 year old bone tool was particularly controversial and captured the attention of many archaeologists (Lyman, 1994: 21). The artifact, a caribou tibia flesher, was unquestionably a tool, but its reported antiquity was debatable (it has since been shown to date to only 1500 years ago [Irving, 1987]) (Lyman, 1994: 21). Following its discovery, numerous other examples of presumed culturally-modified faunal material, comprising the so-called paralithic 'Old Crow Bone Industry' (Irving *et al.*, 1989), were also reported from the region. Like the earlier publications of Dart, these reports sparked extensive controversy and a "flurry of paleontological, archaeological, and actualistic research" (Lyman, 1994: 21), particularly among North American scholars. Much of this research attempted to distinguish the products of hominid activities on faunal assemblages from those of non-hominid agents (Bonnichsen, 1989a; Koch, 1989: 4; Lyman, 1994: 20-21). Bonnichsen (1973, 1979), for example, expanded on the earlier works of Breuil and illustrated that fresh, dry, and fossil bones all exhibited differential fracture patterns (Koch, 1989: 4). His research, applied to the Old Crow faunal material, supported the notion that much of the observed faunal modification was the product of cultural behavior rather natural agents (Bonnichsen, 1978, 1979). The debate has yet to be settled (Koch, 1989: 4; Lyman, 1994: 21). Bonnichsen was also one of the first archaeologists to maintain that humans were taphonomic agents (Bonnichsen, 1989a; Koch, 1989: 4).

During this same period (the late 1960's and early 1970's), African archaeology, under the influence of Isaac (1967, 1968, 1971), also began to develop a taphonomic perspective (Koch, 1989: 4). Isaac's work (1967), for example, investigated modern

bone disintegration, disarticulation, and dispersal in east Africa. In addition, because Isaac's research was associated with that of prominent taphonomic paleontologists, Behrensmeyer and Hill (Behrensmeyer, 1975a, 1975b, 1978; Behrensmeyer and Hill, 1980; Hill, 1976, 1978, 1979), it also helped to make paleontological taphonomic research more accessible to archaeologists (Koch, 1989: 4; Lyman, 1994: 23-25). This interchange eventually culminated with the synthesis of archaeological and paleontological taphonomy (see below) (Koch, 1989: 2, 4; Lyman, 1994: 16-17).

Although archaeological interest in taphonomy increased significantly since the 1960's, the term was not widely adopted by archaeologists until the mid to late 1970's (Lyman, 1994: 21-23). A number of zooarchaeological works of the 1960's and 1970's (see Chaplin, 1971; Guilday *et al.*, 1962; and Zeigler, 1973), for example, made definitive statements regarding 'taphonomic' data and expressed concerns about 'taphonomic' histories and their resultant biases, all without making use of the term (Lyman, 1994: 21-23). In fact, of the 47 articles comprising the published proceedings of a 1974 zooarchaeological conference (Clason, 1975), none used the terms 'taphonomy,' 'biostratinomy,' or 'diagenesis,' even though these topics were frequently discussed (Lyman, 1994: 22). This terminology issue was remedied in the late 1970's, with the coalescence of archaeological and paleontological taphonomy.

For much of the mid-twentieth century, the histories of archaeology and paleontology, including their respective findings, methodologies, and debates, ran parallel to one another (Gifford, 1981). Thus, during this period, the discipline of taphonomy evolved somewhat independently within these two traditions (Koch, 1989: 2, 4; Lyman, 1994: 16-17). However, developments in taphonomy during the late 1970's

and early 1980's resulted in the "synthesis of paleontological and archaeological methods and theory… [which] transformed traditional taphonomy into a broad theoretical framework that [was] more congruent with… archaeology" (Koch, 1989: 4). In North America, these developments had focused predominantly on the elucidation of the agents and processes responsible for bone breakage and modification (for example, see Binford, 1981; Binford and Bertram, 1977; Bonnichsen, 1978; Frison, 1976, 1978; Morlan, 1978, 1980). In Africa, on the other hand, paleoanthropologists were heavily influenced by developments in paleoecology [3] (for example, see Behrensmeyer and Dechant, 1980; Shipman, 1981). Brain (1976, 1978, 1980), focusing on agents of South African faunal accumulations, and Gifford (1980; Gifford and Behresmeyer, 1977), focusing on taphonomic site formation processes, were exceptions to the general trend (Koch, 1989: 4). Upcoming archaeologists, influenced by Isaac and following the lead of Brain and Gifford, began to conduct research into the taphonomic agents responsible for site formation processes (Koch, 1989: 4). In addition, (earlier) taphonomic research characterizing North American archaeology was likely the inspiration behind studies into the mechanical properties of bone, such as bone damage research (for example, Bunn, 1981) and microscopic analyses of cut marks (for example, Bunn, 1981; Potts and Shipman, 1981) (Koch, 1989: 4).

The 1980's witnessed a growing awareness, by archaeologists and paleontologists alike, of the information that could be gained from taphonomic research (Lyman, 1994: 27). Whereas Efremov believed the focus of taphonomy was the study of information loss and bias, practitioners forty years later began to recognize its potential for positive contributions (Koch, 1989: 2; Lyman, 1994: 26-27). In 1981, Gifford determined that, in

addition to identifying biases in the archaeological record, taphonomic research could provide information regarding paleoecology (Gifford, 1981). In fact, following a 1984 symposium entitled "The Positive Aspects of Taphonomy" (Lyman, 1994: 27), paleontologists Behrensmeyer and Kidwell proposed an alternative definition of taphonomy as "the study of the processes of preservation and how they affect information in the fossil record" (Behrensmeyer and Kidwell, 1985), emphasizing the improved understanding gained through taphonomy (Bonnichsen, 1989a; Koch, 1989: 2; Lyman, 1994: 30). Bonnichsen, an archaeologist, approved of the modified definition, but proposed that it should be "explicitly extended to include the goal of learning about human adaptive systems" (Bonnichsen, 1989a). Koch (1989: 2) also felt that an expansion of Behrensmeyer and Kidwell's definition to include cultural information gain would be more useful to archaeologists.

Interest in taphonomic research has continued to grow throughout the 1980's and 1990's, contributing significantly to the fields of archaeology and paleontology. Within the realm of archaeology, for example, taphonomy has provided insight into such factors as bone technology, the accumulation of faunal material, and ancient subsistence strategies (Koch, 1989: 5). The study of taphonomy has been incorporated into various specialized disciplines, including bioarchaeology, ethnoarchaeology, historical archaeology, paleoanthropology, physical anthropology, paleopathology, botany, zoology, geology, and forensic medicine (Gifford, 1981; Koch, 1989: 1; Lyman, 1994: 1; Nawrocki, 1995; Micozzi, 1991: vi; Olson, 1980; Solomon, 1990; Ubelaker, 1997). Furthermore, taphonomy itself, has become more and more specialized.

2.1.3 The Recent Development of Human Taphonomy

Human taphonomy, the investigation of the natural and cultural factors affecting human remains, has recently developed within the fields of (mortuary) archaeology and forensic science (Nawrocki, 1995). Because both disciplines focus on the explanation of the circumstances surrounding death and degradation, particularly the distinction between the products of human activity and those of non-human agents, and both confront, to varying degrees, limitations of evidence, they share a common range of research techniques and perspectives (Boddington *et al.*, 1987a; Knüsel *et al.*, 1996; Heron, 1996). However, (mortuary) archaeology is distinct from forensic science in that it attempts to "reach beyond the specific interpretations of individual events to general propositions concerning the nature of humankind in the past" (Boddington *et al.*, 1987a). Thus, in identifying those factors affecting the condition of human remains, archaeological human taphonomy attempts to isolate human activity in order to facilitate cultural interpretation (Boddington *et al.*, 1987a; Knüsel *et al.*, 1996).

For most of this century, systematic analyses of the decay patterns affecting archaeological human remains were virtually nonexistent (Boddington *et al.*, 1987a). However, beginning in the 1980's, traditional taphonomic approaches began to be actively applied to the study of human skeletal material (Nawrocki, 1995). Furthermore, the growing awareness during this period of the positive contributions of taphonomic research (see above) was not overlooked by those investigating the taphonomy of human remains. Thus, human taphonomy evolved with the understanding that the processes of skeletal decay and destruction were not hindrances to past cultural interpretation, but rather that their analyses could be "harnessed for the purposes of reconstruction"

(Boddington *et al.*, 1987b: ix). This approach was evident in the first extensive volume concerning human taphonomy, entitled *Death, Decay, and Reconstruction: Approaches to Archaeology and Forensic Science* (Boddington *et al.*, 1987b). Stemming from a 1986 joint archaeology and forensic science conference in Leeds, the volume was comprised of seventeen papers united by their examination of the processes of decomposition and disintegration affecting human interments (Boddington *et al.*, 1987b: ix). Although the term 'taphonomy' appeared in only four of the articles (Boddington *et al.*, 1987a; Brothwell, 1987; Henderson, 1987; Garland, 1987), many others discussed 'taphonomic' factors and implications without utilizing the word (Bethell and Carver, 1987; Boddington, 1987; Manchester, 1987; Mant, 1987; Waldron, 1987a, 1987b).

The works of Bethell and Carver (1987), Brothwell (1987) and Boddington (1987) all utilized taphonomic research to explain unusual and varying states of skeletal disintegration and disturbance exhibited at three different interment sites. Bethell and Carver (1987) determined that inhumed pseudomorphs [4] at the burial mound of Sutton Hoo did indeed represent the 'remains' of interred individuals (as opposed to being ritualistic features, or representing secondary exhumations) and concluded that sediment chemical composition was predominantly responsible for the intriguing phenomenon. Brothwell (1987) determined that the unusual skeletal disarray (or "bone tumble") exhibited by some inhumed individuals, but not by others, at the York Jewbury cemetery was likely the result of their transportation in coffins, while highly decomposed, prior to burial. Boddington (1987) concluded that the varying states of skeletal decay, disturbance, and positions evident among the remains of a large Anglo-Saxon cemetery at Raunds was likely caused by a variety of factors, including the surrounding hard clay

sediment, pre-burial transportation of highly decomposed remains, and the variable use of tightly-wrapped mortuary shrouds.

Boddington *et al.* (1987a) emphasized the significance of identifying the processes of skeletal decay and accounting for limitations in recovery and analysis, prior to attempting to reconstruct past events. Henderson (1987) outlined the variety of taphonomic factors, including both ancient and contemporary human activity, which can variably affect human skeletal condition. Waldron (1987a) examined the skeletal condition of a London Romano-British cemetery in order to illustrate the effects of intrinsic skeletal factors, and then outlined the implications of skeletal condition for paleopathological analyses. Mant (1987) summarized a variety of taphonomic variables affecting (predominantly) soft tissue decomposition, as observed during a number of 1940's exhumations of World War II dead. Garland (1987), in discussing the contribution of bone histology [5] to the investigation of human skeletal remains, outlined the various taphonomic agents which can affect the histological appearance of interred skeletal material. Finally, Waldron (1987b), while reviewing trace element analysis of human skeletal tissue, briefly mentioned the postmortem depositional factors which can affect the interpretation of skeletal trace elements.

A number of studies on archaeological human taphonomy have been published since the mid 1980's. Garland *et al.* (1988) utilized histology to investigate the nature and cause of skeletal decay in a Rothwell charnel house. It was determined that fungal activity, which had commenced in the burial environment, had continued to degrade the skeletal remains following exhumation because of the humid conditions of the crypt in which they were stored. Recommendations were made to prevent further decay of the

skeletal material (Garland *et al.*, 1988). Garland and Janaway (1989) summarized various methods of postmortem disposal and their effects on taphonomic agents, and thus the nature and rate of both soft tissue and skeletal decay. Jambor (1988) presented a model for assessing the chemical contamination of bone tissue from burial environments. In a study by Walker *et al.* (1988), the comparison of historic records with the excavated remains of a Californian cemetery indicated marked discrepancies between the demographic profiles of those individuals interred and those exhumed. The results indicated the significant effects of age at death, rather than sex, on skeletal condition, and stressed caution when reconstructing paleodemographic structures (Walker *et al.*, 1988). A study conducted by Guy *et al.* (1997) also warned about the implications of paleodemographic reconstruction. The intrinsic (physico-chemical) properties of infant bones were examined in order to explain why infants are usually poorly represented at cemetery sites, even though high infant mortality has generally been the rule (Guy *et al.*, 1997).

Maat (1993) utilized microscopy to examine the nature of skeletal decomposition from a Kuwaiti island cemetery. A number of taphonomic agents responsible for the skeletal condition were identified, and to avoid misinterpretation of pseudo-pathologies, the patterns of their destruction were differentiated from those of antemortem pathological processes (Maat, 1993). Ubelaker and Adams (1995) utilized taphonomic indicators to determine that the 'butterfly' fractures exhibited by skeletal remains from a construction site in Georgia were the result of recent postmortem trauma rather than antemortem or perimortem trauma, as is normally associated with this pattern of fracturing. Nawrocki (1995) first outlined the various taphonomic agents which can

affect human skeletal remains, and then reported on a case study concerning the historic Oneida cemetery. It was determined that depth below ground surface, likely affecting other taphonomic agents, was directly associated with the condition of the skeletal remains, but that sex was not a significant factor (Nawrocki, 1995). Knüsel *et al.* (1996) introduced an unusual phenomenon, cadaveric spasm, to illustrate that taphonomy can often explain unusual body positions, artifactual associations, and the absence or disarticulation of skeletal elements within archaeological contexts, circumstances which have previously been the basis for possibly erroneous claims of antemortem ritual. Janaway (1996) summarized the numerous taphonomic agents responsible for both soft tissue and skeletal decomposition of interred human remains. Finally, Merbs (1997) reported on the varying condition of ancient skeletal remains from two Canadian arctic cemeteries, and identified a number of taphonomic factors responsible, including sediment acidity and pressures, freeze-thaw cycles, humidity, flora, fauna, burial disturbance, and age at death. It is interesting to note that the word 'taphonomy' did not appear in the works of Jambor (1988), Garland *et al.* (1988), Walker *et al.* (1988), and Janaway (1996). However, both Jambor (1988) and Janaway (1996) did utilize the term 'diagenesis.'

This brief review emphasizes the still underdeveloped state of the recent field of human taphonomy. In fact, only since the early 1990's has the term been widely adopted to refer to the study of the postmortem modification of human remains. Nevertheless, the significance of human taphonomy is becoming increasingly acknowledged by archaeologists and physical anthropologists alike. Separating perimortem and postmortem phenomena, for example, is not as simple as it was once thought to be

(Nawrocki, 1995). According to Nawrocki (1995), human taphonomy "bridges the gap that commonly exists between the field archaeologist and the physical anthropologist." Unfortunately, there continues to be a general lack of integration between these two disciplines (see Boddington, 1987; Nawrocki, 1995; McKinley, 1989; Stroud, 1989), an effect which can only negatively influence the development of human taphonomy as a field of study.

2.2 Summary of Taphonomic Factors

Human taphonomy, the focus of this thesis, incorporates the distinctiveness and increased complexity of cultural, particularly mortuary, practices in exploring those taphonomic agents and processes [6] which affect human skeletal remains (Nawrocki, 1995). Numerous factors, physical, chemical, and biological, intrinsic and extrinsic to skeletal material, and acting dependently or independently of one another, must be considered (Henderson, 1987). There is currently no standardized system for the classification of taphonomic factors, and it generally varies in accordance with both field of study and extent of intended analysis (Nawrocki, 1995). For the purpose of this thesis, those factors influencing human remains prior to or after inhumation ('burial' or interment' within the *ground*), will be emphasized. These factors have been classified into three major categories, closely following those identified by Nawrocki (1995): intrinsic, extrinsic natural, and extrinsic cultural. These "categories are not always mutually exclusive" (Nawrocki, 1995), as some taphonomic factors can be classified into more than one category (for example, see 'trauma, disease processes, and nutritional status'). In addition, many of these factors influence, and are influenced by, a variety of

others (for example, see 'microscopic biotic agents' and 'temperature,' 'oxygen,' 'water,' and 'sediment').

2.2.1 Intrinsic Factors

The taphonomic history [7] of a skeleton has been described as an interplay between the opposing agents of preservation and destruction (Boddington *et al.*, 1987a; Garland and Janaway, 1989; Marshall, 1989). Many of the agents of preservation are intrinsic, stemming from the individual characteristics and attributes of the skeletal remains, themselves (Boddington *et al.*, 1987a; Henderson, 1987; Micozzi, 1991: 54). In fact, variable skeletal condition is frequently observed not only between, but also within, burials (Nawrocki, 1995). There are a number of intrinsic agents which influence skeletal condition: chemical composition, bone shape, bone size, bone density, individual age at death, and disease processes, trauma, and nutritional status (Boddington *et al.*, 1987a; Henderson, 1987; Nawrocki, 1995; Waldron, 1987a).

The chemical composition, and thus breakdown, of skeletal elements is very complex and involves both the organic and inorganic constituents of the bone tissue (Garland, 1987; Gill-King, 1997; Henderson, 1987; Pollard, 1996; White and Hannus, 1983). Upon burial, the organic matrix, comprising between 20 and 25% of a skeletal element, is subjected to the slow transformation of proteins to peptides to amino acids (Henderson, 1987; Janaway, 1996; Pollard, 1996). The inorganic matrix is also subjected to transformational processes. The protein-mineral bond is weakened by the rearrangement of the crystalline structure, the removal of proteins and minerals, and the substitution, infiltration, and adsorption of ions from the surrounding environment (Garland, 1987; Garland and Janaway, 1989; Janaway, 1996; Henderson, 1987; Pollard,

1996; White and Hannus, 1983). This adversely affects both the chemical and morphological integrity of the bone (Garland and Janaway, 1989; Janaway, 1996). Water, soil type, and the shape, size, and density of skeletal elements all influence the rate of chemical breakdown (see 'bone shape,' 'bone size,' 'bone density,' 'water,' and 'sediment,' below) (Garland, 1987; Gill-King, 1997; Henderson, 1987).

Bone shape is an important agent affecting condition. Bones are generally grouped into four categories based on their shapes: long, short, flat, and irregular (Bass, 1995: 4; Henderson, 1987; Janaway, 1996; Micozzi, 1991: 54). Some discrepancy surrounds the placement of particular bones into these categories (for example, see Bass, 1995: 4 and Micozzi, 1991: 54-55). The classification used here will reflect that outlined in Bass (1995: 4). Long bones include the humeri, radii, ulnae, clavicles, femora, tibiae, and fibulae. Short bones include the metacarpals, metatarsals, and manual and pedal phalanges. Flat bones include the large cranial vault elements, ossa coxae, scapulae, ribs, sternum, and sacrum. Irregular bones include the vertebrae, carpals, tarsals, patellae, and the small bones of the cranium. The mandible is generally viewed as exceptional (Micozzi, 1991: 55). Flat and irregularly shaped bones are more susceptible to mechanical breakdown such as warping, crushing, and breakage (Henderson, 1987; Janaway, 1996). For example, the ossa coxae generally exhibit poorer condition than long bones of similar size (Henderson, 1987; Janaway, 1996; Waldron, 1987a).

Size is an obvious agent affecting bone condition, with small elements being significantly more vulnerable to both disintegration and disturbance than larger ones (Boddington, 1987; Henderson, 1987; Janaway, 1996; Micozzi, 1991: 56-57; Waldron, 1987a). Compared with large bones, not only do small bones exhibit decreased total

mass, they also exhibit decreased density, and thus relative mass. Small bones are less dense than larger ones because they exhibit larger surface area to volume ratios [8] (Gifford, 1981; Janaway, 1996; Micozzi, 1991: 56-57). As a result, decay rates of skeletal elements are inversely proportional to their size (Henderson, 1987). In addition, small bones, particularly those of infants and children, are more prone to disturbance by animal activity (see 'faunal agents,' below) and soil movement (Boddington, 1987). According to Waldron (1987a), small bones such as phalanges, carpals, and coccygeal vertebrae are generally underrepresented in archaeological contexts, in comparison with larger bones. However, the under-representation of small skeletal elements may also be attributable to incomplete recovery during excavation, due to their low archaeological visibility (Henderson, 1987; Micozzi, 1991: 57; Waldron, 1987a).

Bone density is another intrinsic agent influencing skeletal condition. Density is not only associated with size (see above) and age (see below), but also with specific skeletal elements and portions of skeletal elements (Janaway, 1996; Micozzi, 1991: 55). Bone density, described by the relative proportions of dense compact (cortical) and porous cancellous (spongy or trabecular) bone, varies among skeletal elements (Henderson, 1987; Micozzi, 1991: 55). Vertebral bodies, sterna, carpals, tarsals, and the articular ends of long bones all consist predominantly of cancellous bone (Boddington, 1987; Nawrocki, 1995). The shafts of long bone, on the other hand, are comprised of thick cortical bone (Nawrocki, 1995). In addition to long bone shafts, Waldron (1987a) found that other dense bones such as temporal petrous portions, mastoid processes, acetabula, and proximal ulnae were all generally well represented in archaeological contexts, in comparison with less dense skeletal elements.

The age at death of an individual is also an important agent influencing skeletal condition because it is related to both bone size and density. The skeletal remains of immature individuals are not only smaller and more numerous than those of adults, but they are also less dense because they are only partially mineralized (Guy *et al.*, 1997; Henderson, 1987; Janaway, 1996; Nawrocki, 1995; Micozzi, 1991: 55-57). The remains of old individuals [9], particularly the vertebrae, can also exhibit decreased bone density due to the onset of senile osteoporosis, or the demineralization of the skeleton (Boddington, 1987; Henderson, 1987; Janaway, 1996; Micozzi, 1991: 55-57; Nawrocki, 1995). On the other hand, a localized increase in bone density can be associated with osteophytic development resulting from age-associated osteoarthritis (Nawrocki, 1995). The remains of young and old individuals are increasingly susceptible to disintegration (Guy *et al.*, 1997; Henderson, 1987; Janaway, 1996; Micozzi, 1991: 55-56; Walker *et al.*, 1988). In a study conducted by Walker *et al.* (1988) it was determined that the remains of children and elderly adults are often underrepresented in archaeological contexts, when compared to those of young adults.

Trauma, disease processes, and nutritional status are all additional agents which can affect the condition of skeletal remains. Trauma, whether accidental or deliberate, can affect the skeleton through the processes of fracturing, cutting, puncturing, or crushing, and can accelerate skeletal disintegration (Henderson, 1987; Waldron, 1987a). Disease can affect skeletal condition in two ways. First, diseased and dying tissues provide more fertile environments for bacterial growth than do healthy tissues, resulting in increased postmortem bacterial colonization (Micozzi, 1991: 39). Bacteria (see 'microscopic biotic agents,' below) play roles in both soft tissue and skeletal decay

(Henderson, 1987; Lyman, 1994: 396; Nawrocki, 1995). Second, although relatively few diseases manifest themselves on skeletal tissues (Manchester, 1987; Waldron, 1987a), there are a number of skeletally observable diseases (for example, arthritides, leprosy, treponemal infections, and tuberculosis) which can increase or decrease bone density, and thus affect the susceptibility of skeletal material to decay (Manchester, 1987; Micozzi, 1991: 55-57; Ortner and Putschar, 1995: 399-435, 176-180, 180-218, 141-176). The same is true for nutritional status. Conditions caused by nutritional inadequacy, such as (iron deficiency) anemia, rickets, osteomalacia, and scurvy, all negatively affect bone density, and thus increase the vulnerability of skeletal remains (Micozzi, 1991: 55-57). Trauma, particularly deliberate trauma, as well as some disease processes and indicators of nutritional status, may also be viewed as an extrinsic cultural factor (see 'cause and manner of death' below).

2.2.2 Extrinsic Natural Factors

Human skeletal remains from interred archaeological contexts are exposed to a variety of extrinsic natural taphonomic agents (Henderson, 1987). These can be classified as biotic, involving living organisms, and abiotic, involving non-living environmental factors such as water, sediment, temperature, oxygen, sunlight, and gravity (Garland and Janaway, 1989; Henderson, 1987; Micozzi, 1991: 73; Nawrocki, 1995). Biotic agents can be further classified as macroscopic, including fauna and flora, and microscopic, including fungi and bacteria (Henderson, 1987; Nawrocki, 1995).

There are numerous taphonomic faunal agents to consider: large and small scavenging carnivores, burrowing animals (particularly rodents), herbivores, non-mammalian vertebrate scavengers, and small invertebrates (Haglund, 1992; Haglund *et*

al., 1989; Haglund *et al.*, 1988; Henderson, 1987; Janaway, 1996; Nawrocki, 1995; Patel, 1994). Scavenging carnivores, including bears, dogs, wolves, coyotes, foxes, raccoons, and opposums, can affect human remains directly, through the processes of gnawing, scratching, puncturing, and fracturing, and cause damage and ultimately disintegration (Bonnichsen 1989a; Gifford, 1981; Haglund, 1997a; Haglund *et al.*, 1989; Haglund *et al.*, 1988; Henderson, 1987; Hill, 1979; Janaway, 1996; Lyman, 1994: 3; Mann *et al.*, 1990; Micozzi, 1991: 73; Nawrocki, 1995). They can also indirectly affect human remains, causing disturbance, disarticulation and dispersal; generally, isolated skeletal elements are much less likely to be recovered (Bonnichsen, 1989a; Haglund, 1997a; Haglund *et al.*, 1989; Haglund *et al.*, 1988; Henderson, 1987; Hill, 1979; Janaway, 1996; Lyman, 1994: 3, 137; Mann *et al.*, 1990; Micozzi, 1991: 59-62, 69; Nawrocki, 1995). Soft tissue adhering to or within skeletal elements, rather than the bone tissue itself, is of primary interest to scavenging carnivores (Henderson, 1987; Janaway, 1996), and they have been know to consume the cancellous tissue of long bone epiphyses, ossa coxae, and vertebrae of fresh, decaying, and recently skeletonized remains (Mann *et al.*, 1990). Thus, most damage and disturbance caused by them occurs relatively early in the postmortem interval (Henderson, 1987). Naturally, the extent, if any, of carnivore scavenging activity on human remains is determined by the method of body disposal. For example, during the summer months in the American Pacific Northwest, an exposed body can be skeletonized, almost completely disarticulated, and scattered over a large area, in less than two months (Haglund *et al.*, 1989). Inhumation, on the other hand, can impede or even entirely eliminate scavenging activity, depending on depth and grave cover. For example, scavengers such as foxes, dogs, raccoons, and

opposums have been known to dig and uncover buried remains (Janaway, 1996; Rodriguez, 1997; Rodriguez and Bass, 1985). In addition, scavenging activity is affected by factors such as human population density in the area, season of the year (for example, bears hibernate in the winter), and clothing or other protective coverings on the body (Haglund, 1997a; Haglund *et al.*, 1989; Haglund *et al.*, 1988).

Burrowing animals, such as porcupines, rabbits, squirrels, rats, mice, and moles, can also significantly affect human remains (Haglund, 1997b; Haglund, 1992; Haglund *et al.*, 1988; Henderson, 1987; Janaway, 1996; Micozzi, 1991: 63; Patel, 1994). Again, their activities can cause direct damage or indirect disturbance (Gifford, 1981; Haglund, 1997b; Haglund, 1992; Henderson, 1987; Janaway, 1996; Nawrocki, 1995). However, unlike scavenging carnivores, the effects of burrowing animals are not generally restricted to skeletal elements with soft tissue adherence. It is well documented that rodents gnaw on bone with or without soft tissue, and in the case of the latter, this has been attributed to their "need to provide attrition to their continuously growing incisors" (Haglund, 1992). Gnaw marks by rodents are usually distinguishable from those of scavenging carnivores (Haglund, 1997a, 1997b). Burrowing activity, which may occur any time after inhumation, can cause substantial indirect disturbance, dispersal, and even accumulation of small bones, such as carpals and phalanges, and teeth (Gifford, 1981; Haglund, 1997b; Haglund, 1992; Henderson, 1987; Micozzi, 1991: 63; Nawrocki, 1995). Animal burrows intruding into burials can increase water flow and other natural processes contributing to skeletal disintegration (Haglund, 1992; Henderson, 1987; Nawrocki, 1995). Naturally, accessibility of human remains by burrowing animals is reflected by the degree of direct damage and indirect disturbance incurred. Access is

inhibited, but frequently not denied, by inhumation, with grave depth being the most important factor affecting the extent of this activity (Henderson, 1987; Janaway, 1996; Nawrocki, 1995). In addition, the activity of burrowing animals is affected substantially by season, as many rodents, for example, hibernate during the winter (Haglund *et al.*, 1988). However, because burrowing animals can affect human remains at any time during the postmortem interval, seasonality is more or less inconsequential to this research.

Herbivores and non-mammalian vertebrate scavengers can also influence human remains. Herbivores, particularly ungulates, such as caribou, deer, and sheep, can affect human skeletal remains in two ways: trampling, causing fracturing and subsequent deterioration, and gnawing, causing additional damage to bones (Haglund *et al.*, 1988; Micozzi, 1991: 65-66). Trampling is most common along the margins of large bodies of water; gnawing results from the attempt to access bone matrix minerals (Micozzi, 1991: 65-66). Non-mammalian scavengers include birds, fish, turtles, and crabs (Haglund *et al.*, 1988). Although birds have been observed on and around decomposing human remains, most species feed on insect larvae rather than the actual remains, and thus are not considered be a major factor in decay (Bass, 1997). Some birds such as buzzards and crows, on the other hand, have been known to feed on human remains in the latter stages of decomposition (Bass, 1997; Rodriguez, 1997). Fish and turtles, when provided access to human remains, can "remove flesh from bone quite effectively" (Clark *et al.*, 1997). In all cases, interred skeletal remains are largely invulnerable to the activities of these animals.

Small invertebrates include mites, insects such as ants and beetles, centipedes and millipedes, and snails (Henderson, 1987; Janaway, 1996; Schultz, 1997). Again, their effects can be direct or indirect, destroying or disturbing skeletal material, respectively (Henderson, 1987; Lyman, 1994: 393-394; Nawrocki, 1995; Micozzi, 1991: 46). Insects, present in adult and larval form, can invade a body prior to or after burial, as some species are capable of burrowing and have sense organs that are well adapted to locating corpses (Henderson, 1987; Janaway, 1996; Nawrocki, 1995; Rodriguez, 1997; Rodriguez and Bass, 1983, 1985). Many other species of small invertebrates are soil-dwelling, consuming a variety of organic materials within the soil, and thus have easy access to interred remains (Janaway, 1996). Small invertebrate activity, particularly indirect disturbance, is most pronounced during the period of soft tissue decay, relatively early in the postmortem interval (Micozzi, 1991: 44; Nawrocki, 1995; Rodriguez and Bass, 1983, 1985). Extensive maggot masses, for example, can disperse bones as large as ribs (Nawrocki, 1995). The activities of small invertebrates usually do not cease after complete skeletonization. Burrowing insects, such as ants, can scatter and even accumulate small bones, such as carpals and phalanges, bone fragments, and teeth (Haglund *et al.*, 1989; Henderson, 1987; Micozzi, 1991: 44-46; Nawrocki, 1995; Shipman and Walker, 1980). There have also been documented instances of direct destruction of bone, through gnawing, by termites and beetles (Gifford, 1981; Henderson, 1987; Lyman, 1994: 393-394; Micozzi, 1991: 46). Furthermore, because their presence within a burial environment increases bacterial distribution (see 'microscopic biotic agents,' below), small invertebrates also indirectly facilitate the disintegration of skeletal remains (Janaway, 1996). Small invertebrate activity on human remains is hindered by

decreasing temperatures (particularly associated with seasonality) and increasing burial depth below surface (see 'temperature,' and 'sediment,' below) (Mann *et al.*, 1990; Rodriguez and Bass, 1983, 1985). For example, fly eggs and larvae (maggots) will die if exposed to temperatures of 0° C or lower (Mann *et al.*, 1990). Finally, the products of the direct activity of small invertebrates, like those of direct plant activity (see 'floral activity,' below) may resemble pathological lesions and may misinterpreted by paleopathologists (Henderson, 1987; Lyman, 1994: 393-394).

The effects of floral activity on skeletal material can also be substantial (Henderson, 1987; Micozzi, 1991: 71; Nawrocki, 1995). Plant roots can indirectly disturb remains, or penetrate them and cause direct destruction such as fragmentation (Henderson, 1987; Janaway, 1996; Micozzi, 1991: 71; Nawrocki, 1995). Because they secrete acidic byproducts, plant roots can etch bone surfaces and leave marks which resemble pathological lesions (Gifford, 1981; Henderson, 1987; Janaway, 1996; Lyman, 1994: 375; Nawrocki, 1995; Schultz, 1997). Plant root activity, associated with an increase in bacterial distribution (see 'microscopic biotic agents,' below), can also indirectly facilitate skeletal disintegration (Janaway, 1996). On the other hand, networks of small rootlets surrounding skeletal remains can actually enhance their condition, by drawing water away from the bones and keeping the associated soil loose (Nawrocki, 1995). Plant root activity is particularly pronounced in areas with extensive surface vegetation, and thus there is a distinct variation in this effect between tropical and temperate climatic zones (Henderson, 1987; Janaway, 1996; Micozzi, 1991: 71). Furthermore, the release of organic material into the surrounding soil by decomposing bodies can substantially increase the growth of surface vegetation directly over 'shallow'

burials (about 30 centimeters in depth or less), beginning about one year after inhumation, and continuing for at least several years (Rodriguez and Bass, 1985). Naturally, the extent of floral activity on human remains is the product of burial depth and grave cover, in addition to temperature.

Microscopic biotic agents affecting skeletal condition include fungi and bacteria (Garland, 1987; Henderson, 1987; Janaway, 1996; Lyman, 1994: 395-397; Nawrocki, 1995; Schultz, 1997). The effects of microorganisms on skeletal tissue are twofold: not only do they destroy bone tissue, but they also produce changes resembling pathology (Henderson, 1987). Fungi, present in soil, require oxygen and humidity to survive (Janaway, 1996). Under favorable conditions, they gain access to collagen for consumption by creating small tunnels in cortical bone and redepositing bone mineral (Janaway, 1996; Lyman, 1994: 395-396; Schultz, 1997). Fungi can also cause dark staining of skeletal tissue. Both aerobic and anaerobic bacteria are present in soil as well as in interred bodies. Bacteria feed on organic material such as dead plant remains, insect and other faunal feces, and the remains of small soil-dwelling invertebrates, in addition to inhumed human bodies, and thus their presence is positively affected by that of both flora and fauna within the burial environment (Janaway, 1996). Bacterial activity is affected by varying levels of humidity, oxygen, acidity, and temperature (see 'water,' 'oxygen,' 'sediment,' and 'temperature,' below) (Janaway, 1996; Mocozzi, 1991: 40-42). Bacteria also create tunnels in bone, although these can be distinguished from those of fungi by their substantially smaller size (Janaway, 1996; Lyman, 1994: 396). The tunnels created by microorganisms "reduce the structural density and increase the porosity of the [bone] tissue," thus making it more vulnerable to other taphonomic agents (Lyman, 1994: 397).

In addition, these microscopic tunnels gradually coalesce to form larger areas of resorbed cortical bone (Janaway, 1996; Lyman, 1994: 396; Schultz, 1997). Although fungal and bacterial tunnels often mimic pathology, they can usually be distinguished from the latter because of their mineral redeposition, a process not associated with pathological processes (Henderson, 1987; Janaway, 1996; Lyman, 395-396).

Evidence of biotic activity on skeletal material is not restricted to directly damaged, dispersed, or missing skeletal elements. Indirect evidence such as associated animal burrows or animal bones, seeds or pollen grains, or insect pupal casings, are also indicative of the attainability of the skeletal material by various biotic agents. In addition, associated indirect evidence may also indicate the time of year (or season) the remains were interred (Henderson, 1987; Nawrocki, 1995).

Numerous natural abiotic agents influence the condition of human skeletal remains. Water, in the form of relative humidity, mean annual precipitation, or drainage, is perhaps the most critical agent affecting skeletal condition (Henderson, 1987; Nawrocki, 1995). It can result in several processes acting on skeletal material. First, water hydrolyzes proteins into peptides, weakening the protein-mineral bond and increasing an element's susceptibility to degradation (Garland, 1987; Nawrocki, 1995; Pollard, 1996). Second, percolating ground water introduces acids and minerals from the surrounding environment into skeletal tissue, further debilitating the protein-mineral bond (Garland, 1987; Henderson, 1987; Nawrocki, 1995; Pollard, 1996). Third, associated with a freeze-thaw cycle, water can both fracture and disturb skeletal remains (Micozzi, 1991: 71; Nawrocki, 1995). Fourth, simple evaporation, if occurring rapidly, can cause skeletal elements to fracture and warp (Nawrocki, 1995). And finally, soil humidity

positively affects both fungal and bacterial activity (see 'microscopic biotic agents,' above) (Janaway, 1996; Micozzi, 1991:40-42). Generally, increased humidity negatively affects skeletal condition (Henderson, 1987).

The sediment surrounding skeletal material is also an important agent affecting its condition. There are several aspects of sediment to be considered: chemistry, depth, pressure, and porosity (Henderson, 1987; Lyman, 1994: 416; Nawrocki, 1995). The affects of sediment chemistry usually concern pH, but may also involve more exceptional factors such as saline content (Henderson, 1987). In most cases, skeletal condition is better in neutral or slightly alkaline sediments and poorer in acidic ones, as even weak acids dissolve the inorganic matrix of bone tissue (Henderson, 1987; Gordon and Buikstra, 1981; Janaway, 1996; Pollard, 1996). On the other hand, acidic conditions act to impede most bacterial activity (see 'microscopic biotic agents,' above) (Janaway, 1996). Worthy of note is that decomposing soft tissue generally increases surrounding sediment alkalinity by as much as two pH levels, but that this change is temporary and returns to the original state following skeletonization (Gill-King, 1997; Rodriguez and Bass, 1985). Sediment or burial depth, the result of deposition or erosion, is a very important factor affecting the condition of skeletal remains (Henderson, 1987; Nawrocki, 1995). Greater depth generally provides increased protection from taphonomic processes, both biotic and abiotic, because of "stable, low temperature, poor gas diffusion, and inaccessibility to floral and faunal agents" (Janaway, 1996). Also associated with depth is sediment pressure, whether gradual or resulting from sudden collapse, which can cause skeletal fragmentation and warping (Henderson, 1987; Janaway, 1996). Although warping does not directly affect skeletal condition, it does

affect physical anthropological analyses (Henderson, 1987; Janaway, 1996). However, it must be noted that the positive effects of increasing burial depth on skeletal material appear to far outweigh the negative effects (sediment pressure); generally deeper burials exhibit better skeletal condition than more shallow burials (Henderson, 1987). Finally, sediment porosity must also be considered (Henderson, 1987; Lyman, 1994: 416). By facilitating oxygen exchange (see 'oxygen,' below), light porous sediments assist decomposition, while dense sediments impede it (Garland and Janaway, 1989; Henderson, 1987).

Temperature can significantly increase or decrease the rate of both soft tissue and skeletal decomposition (Gill-King, 1997; Henderson, 1987; Mann *et al.*, 1990; Micozzi, 1991: 41-42, 1997; Rodriguez and Bass, 1985). Variation in temperature can be the result of altitude, latitude, season, or depth below ground surface (Gill-King, 1997; Henderson, 1987; Janaway, 1996; Rodriguez, 1997; Rodriguez and Bass, 1985). For example, increasing burial depth is associated with decreased soil temperatures and temperature fluctuations (Rodriguez and Bass, 1985). Bacteria, enhancing both soft tissue and skeletal decay (see 'microscopic biotic agents,' above), generally thrive in temperatures between 15° and 37° C. However, their growth is severely retarded in temperatures below 12° C, and stops almost entirely at temperatures below 5° and above 37° C (Micozzi, 1991: 40-41, 1997). Prior freezing also impedes bacterial activity (Micozzi, 1991: 42), and thus the rate of many decompositional changes (Micozzi, 1997). In addition to bacterial growth, warm temperatures facilitate chemical reactions, such as the loss of nitrogen from bone tissue (Henderson, 1987). A general rule states that a rise in temperature of only 10° C more or less doubles chemical reaction rates (Gill-King,

1997; Henderson, 1987). Furthermore, cold temperatures substantially decrease floral and faunal activity (see 'faunal agents,' and 'floral activity,' above) (Haglund *et al.*, 1988; Henderson, 1987; Janaway, 1996; Rodriguez and Bass, 1983, 1985). Thus, cold temperatures tend to preserve human remains, while warm temperatures enhance their disintegration.

Oxygen, sunlight, and gravity are also notable agents affecting the condition of skeletal material. Although oxygen plays a crucial role in the processes of soft tissue decomposition, its presence also enhances skeletal decay (Henderson, 1987). Fungi and many bacteria (see 'microscopic biotic agents,' above), for example, cannot live without oxygen (Janaway, 1996; Micozzi, 1991: 42). Oxygen within a burial environment can vary with depth, burial characteristics (for example, sealed coffins), and overlying sediment porosity (see 'sediment,' above) (Henderson, 1987). Sunlight can also affect skeletal condition (Nawrocki, 1995). According to Gifford (1981), skeletal material exposed to direct sunlight degrades more quickly than shaded material. Finally, the effects of gravity on skeletal condition cannot be overlooked, and generally results in horizontal and downslope movement and dispersal of skeletal material (Lyman, 1994: 411; Micozzi, 1991: 73).

2.2.3 Extrinsic Cultural Factors

Within the realm of human taphonomy, the most important agents affecting skeletal condition are people (Henderson, 1987; Lyman, 1994: 411; Nawrocki, 1995; Ubelaker, 1997; Waldron, 1987a). The unique and complex nature of cultural modification to human remains justifies its distinction as a separate category of taphonomic factors (Nawrocki, 1995). Human remains can be affected by a myriad of

cultural factors, ranging from cause and manner of death, to postmortem preparation of the body, to various methods of disposal, to excavation and curation techniques (Boddington *et al.*, 1987a; Henderson, 1987; Nawrocki, 1995; Ubelaker, 1997).

Cause and manner of death, indirectly mentioned above (see 'trauma, disease processes, and nutritional status' above), can significantly influence the condition of skeletal material. "Cause of death can be defined as any disease or injury that produces physiological derangement in the body" (Roberts, 1996), for example, massive blood loss, whereas manner of death can be defined as the "mechanism which leads to the individual's death [and] causes the physical derangement" (Roberts, 1996), for example, homicidal stabbing (which may have caused the previously mentioned massive blood loss). Whether accidental or deliberate, fatal injury is often cultural in origin. Injury can fracture, cut, puncture, or crush bone, and thus accelerate skeletal disintegration (Henderson, 1987; Waldron, 1987a). There are countless cultural practices which can result in fatal injuries and affect the skeleton: stabbing, blunt force trauma, hanging, strangulation, and shooting, are just a few examples (for more detailed information, see Roberts, 1996). Fatal disease and nutritional status can also affect skeletal condition, particularly by increasing or decreasing bone density (Micozzi, 1991: 55-57). Nutritional status, and in some cases, disease, can be interpreted as cultural in origin. For example, prior to the effective employment of chemotherapy and antibiotics, acquired (or venereal) syphilis was most prevalent in urban populations of Europe (Ortner and Putschar, 1995: 181-183). Historically, tuberculosis has also been dependent on population density (Manchester, 1987; Ortner and Putschar, 1995: 142-144).

There are various methods of postmortem body preparation which affect skeletal condition (Henderson, 1987), perhaps the most common of which is cremation. Besides destroying soft tissues (Henderson, 1987), cremation also carbonizes the organic constituents of bone, creating charred or carbonated bone and, depending on temperature and duration, oxidizes the carbon created during the previous stage, creating calcined bone (Buikstra and Swegle, 1989; Lyman, 1994: 385-389; Shipman *et al.*, 1984). Cremation causes fragmentation, friability, and warping (Buikstra and Swegle, 1989; Henderson, 1987; Lyman, 1994: 385-389; Shipman *et al.*, 1984). Fragmentation patterns caused by the cremation of fresh (rather than dried) bone are distinctly transverse (Lyman, 1994: 387); this is particularly evident on long bones. Cremation may also serve to preserve skeletal material by destroying the organic components of bone tissue, and subsequently protecting skeletal elements from biological organisms that feed on organic material (Lyman, 1994: 391). Methods of soft tissue preservation, such as intentional mummification, smoking, embalming, or pickling, generally preserve skeletal tissue as well (Henderson, 1987; Sledzik and Mocozzi, 1997). Other methods of postmortem body preparation include skeletal dismemberment, manual defleshing, transportation, and temporary caching. These practices influence skeletal condition most significantly by decreasing the probability of recovery (Henderson, 1987), but also act to increase susceptibility to other taphonomic processes. Defleshed, dismembered, transported, and cached bodies are much more likely to have at least some of their skeletal elements damaged or dispersed and subsequently lost (Henderson, 1987).

People determine when, where and how to dispose of human remains, and are thus in a unique position to influence skeletal condition (Henderson, 1987; Lyman, 1994:

411; Nawrocki, 1995). A number of situations characterize the disposal of human remains, including cemeteries, earthworks (or barrows), caves or rockshelters, associations with structures, collective graves such as 'plague' pits, and incidental burials (Lovell, 1996). In addition, there are various methods of disposal. A body can be left exposed on the surface, buried in a pit of varying depth and topped with a variety of grave coverings, interred in a surface burial (or mound), or interred in an above- or below-surface tomb, or walled structure (Garland and Janaway, 1989; Lovell, 1996). At Khuzhir-Nuge XIV, concern is only with pit (or partial pit) burials (inhumations). The period between death and interment may vary, as may the duration and integrity of the interment (for example, burials may be disturbed or undisturbed, and primary or secondary) (Henderson, 1987). Bodies can be wrapped in textiles, hides, mats, or other substances, they can be interred in coffins or other mortuary receptacles, and they can be associated with various grave goods (Garland and Janaway, 1989; Henderson, 1987; Lovell, 1996).

According to Nawrocki (1995), the "simple act of burial does more to preserve bones than any other phenomenon in the natural world," because it inhibits many of the destructive taphonomic factors mentioned above, particularly warm and fluctuating temperatures and access by flora and fauna (Henderson, 1987; Mann *et al.*, 1990; Rodriguez and Bass, 1985). Generally, the deeper the burial, the better the skeletal condition (Henderson, 1987). In addition, the shorter the period between death and inhumation, the less substantial the effects of most taphonomic agents on skeletal material (Garland and Janaway, 1989; Lyman, 1994: 416). In fact, temporary exposure and subsequent (secondary) inhumation results in similarly poor skeletal condition as

straightforward exposure (Henderson, 1987). Burial disturbance, whether the result of looting, exhumation, or an intrusive interment, can damage and scatter remains (Henderson, 1987). Clothing, funerary wrappings, and mortuary receptacles generally hinder the rate of decomposition, but will eventually decompose themselves (Garland and Janaway, 1989; Henderson, 1987; Janaway, 1996; Mann *et al.*, 1990). In many cases, mortuary structures, such as tombs or cairns, also disintegrate over time (Henderson, 1987). Metal (for example, copper, iron, or bronze) grave goods can result in localized environments that are highly toxic to microorganisms and thus inhibitory to decay (Henderson, 1987; Janaway, 1996). However, the preservative effects of metal objects are generally insignificant because the toxic area is usually very localized, perhaps only a few centimeters in diameter (Janaway, 1996).

The effects of excavation and curation on the condition of human remains cannot be overlooked (Boddington, 1987; Boddington *et al.*, 1987a; Henderson, 1987; Nawrocki, 1995; Waldron, 1987a). Excavation, even meticulous excavation, can cause nicks, cuts and even fractures to skeletal remains, particularly those in poor condition. Simple exposure to air and sunlight can cause bones to crack and warp in only a few hours (Lovell, 1996; Nawrocki, 1995). Packaging, transportation, and cleaning can also significantly damage skeletal remains (Nawrocki, 1995; Waldron, 1987a). In addition, the incomplete recovery of skeletal material must be considered. This can result from the low archaeological visibility of small and poorly preserved bones, as well as the excavator's lack of experience and knowledge of human osteology (Haglund *et al.*, 1988; Henderson, 1987; Micozzi, 1991: 57; Waldron, 1987a). Unfortunately, conflicting

interests between archaeology and physical anthropology can often reduce the condition of excavated skeletal material (Henderson, 1987).

2.3 Research Hypotheses

The numerous and variable taphonomic processes and agents which can affect, to some extent or another, the condition of human skeletal remains (see above), may lead one to the conclusion that variable skeletal condition is generally the norm and thus should have been expected at Khuzhir-Nuge XIV. However, this conclusion would be erroneous. In fact, variation in the type and extent of taphonomic factors affecting human remains interred at one locale is usually limited. At Khuzhir-Nuge XIV, all burials were situated within the localized area of the cemetery, measuring about 300 by 150 m. Thus, they were all subjected to the same extent of many of the same natural taphonomic factors, such as sediment chemistry and porosity, temperature, humidity, and (ideally) flora and fauna. Furthermore, the relatively old archaeological age of the cemetery (third millennium BC; Weber *et al.*, n.d.) largely diminished temporal differences between the burials, in terms of the taphonomic factors acting on them. Thus, rather than being expected, the variable skeletal condition at Khuzhir-Nuge XIV was unusual; its explanation is the objective of this research. Integral to the success of this objective is the satisfaction of the following four hypotheses.

1. Archaeological age is responsible for the variable skeletal condition at Khuzhir-Nuge XIV.

It can be argued that variation in skeletal condition at Khuzhir-Nuge XIV is simply the result of the increased antiquity of some skeletal remains over others. In fact, until archaeological age is determined and accounted for, it can conceivably override the effects of all other taphonomic factors. The results of radiocarbon dating will be utilized to ascertain the relationship, if any, between archaeological age and skeletal condition.

2. Intrinsic skeletal factors have an effect on the variable skeletal condition at Khuzhir-Nuge XIV.

It can also be argued that variation in skeletal condition at Khuzhir-Nuge XIV is simply the result of the intrinsic properties of the skeletal remains, themselves. For example, poor skeletal condition may be directly correlated with very old or very young individuals, or with small, less dense, and irregularly-shaped skeletal elements. This research will determine the extent to which intrinsic factors can account for the observed variability in skeletal condition.

3. Extrinsic natural factors have an effect on the variable skeletal condition at Khuzhir-Nuge XIV.

If all burials were subjected to identical taphonomic environments, then all variation in skeletal condition should reflect variation in the intrinsic characteristics of the skeletal remains, themselves, and in the archaeological age of the burials (see Hypotheses 1 and 2 above). If this is not the case, then the variable skeletal condition will, at least in

part, be the result of variation in the extrinsic natural and cultural taphonomic processes affecting the remains. Because, with few exceptions, people are ultimately responsible for the post-mortem preparation and disposal of human remains (Henderson, 1987; Nawrocki, 1995), it can be argued that cultural practices control the effects of extrinsic natural agents. Identical mortuary protocols, for example, will ideally result in identical effects by natural taphonomic factors. Thus, variation in skeletal condition at Khuzhir-Nuge XIV may ultimately be the result of variation in extrinsic cultural taphonomic factors.

4. The variable skeletal condition at Khuzhir-Nuge XIV can be accounted for by the previously identified extrinsic cultural factors (Glaskovo mortuary protocol).

There are five variable dimensions of Glaskovo mortuary protocol currently identified in the literature: 1) body preparation (inhumation with or without cremation), 2) body position (extended versus semi-flexed versus squatting), 3) interment type (single versus multiple), 4) size and shape of paving stone arrangements, and 5) type and extent of grave goods. The effects of these five factors on skeletal condition at Khuzhir-Nuge XIV will be determined. If skeletal condition can be accounted for by the accepted Glaskovo mortuary protocol, then all variability in skeletal condition at Khuzhir-Nuge XIV which is not accounted for by archaeological age or intrinsic skeletal factors (see Hypotheses 1 and 2, above) will reflect, at least indirectly, the variability exhibited by the protocol. If the existing protocol cannot account for the variable skeletal condition,

cultural factors, which have yet to be observed or accounted for in Glaskovo literature, will have to be identified.

[1] Actualism refers to "observing present day events and their effects in order to give meaning to the prehistoric record" (Gifford, 1981). Actualistic research is derived from Lyell's uniformitarian theoretical perspective (Bonnichsen, 1989b; Gifford, 1981; Gifford-Gonzalez, 1989; Solomon, 1990; Trigger, 1989: 19, 92-93).

[2] 'Defined' laws, characteristic of 'hard' sciences such as physics and chemistry, "define certain parameters which are needed as guidelines in order for research to continue" (Solomon, 1990); 'general' laws, characteristic of 'soft' sciences such as archaeology and paleontology, are nonspecific, "include points common to a class, and neglect differences between them" (Solomon, 1990).

[3] Paleoecology, a branch of paleontology, attempts "to reconstruct [past] ecosystems and their animal and plant communities, using evidence from fossils and environments of burial" (Behrensmeyer and Hill, 1980: xi).

[4] A pseudomorph, generally appearing as soil discoloration in the shape of a human body, represents the more or less complete decomposition of human remains (Bethell and Carver, 1987).

[5] Bone histology is the branch of osteology involving the microscopic structure of bone tissue.

[6] A taphonomic agent is the "source of force" (Lyman, 1994: 3) acting on organic material, while a taphonomic process is the action applied by the agent. For example, gravity and carnivores are taphonomic agents, while downslope movement and gnawing are the processes they cause, respectively (Lyman, 1994: 3). Some agents may cause several different taphonomic processes (for example, carnivores may puncture, flake, scratch, fracture, or polish bone); on the other hand, some processes may be caused by several different taphonomic agents (for example, bone may be fractured by hominids, carnivores, trampling ungulates, gravity, or water) (Bonnichsen, 1989a).

[7] A taphonomic history is a chronological interpretation of the taphonomic agents and processes affecting organic remains (Lyman, 1994: 3).

[8] Volume increases with the cube of the diameter, while area increases with the square of the diameter (Micozzi, 1991: 57).

[9] Although, in modern populations, 'old adults' are those individuals age 50 years or more (Buikstra and Ubelaker, 1994: 9), this is highly variable among individuals.

Chapter Three: Materials and Methods

3.1 Materials

Detailed information regarding the Khuzhir-Nuge XIV burials is presented in Lieverse (1997, 1998). Excavations at Khuzhir-Nuge XIV during the 1997 and 1998 field seasons yielded 31 graves representing 36 individuals. Of the 36 individuals, one was a neonatal infant, one was an infant aged 2 to 3 years, nine were children ranging in age from 4 to 11 years, three were adolescents ranging in age from 14 to 20 years, four were young adults, one was young to middle adult, five were middle adults, two were middle to old adults, three were old adults, six could only be aged as 'adult,' and one was of unknown age at death [1]. All the infants and children were of unknown sex. Of the three adolescents, one was a probable male, and two were of unknown sex. Of the four young adults, one was a male, one was a probable male, and two were of unknown sex. The young to middle adult was of unknown sex. Of the five middle adults, three were males, one was a probable male, and one was of unknown sex. Of the two middle to old adults, one was male and one was female. Of the three old adults, two were male and one was female. Of the six adults, one was a probable female and five were of unknown sex. Finally, the individual of unknown age was also of unknown sex. Table 3.1 summarizes the basic demographic information for the Khuzhir-Nuge XIV burials.

Sixteen burials were single, extended, and supine, and 15 of these had their arms extended along the sides of the body (for example, see Figure 3.1). The other burial (Burial 19) had its left forearm placed across the thoracic region. Two graves contained double burials (Graves 35 and 36) and two graves contained triple burials (Graves 27 and

37). All multiple burials were discrete, extended, and supine (for example, see Figure 3.2), with three exceptions. The remains of Burials 36.1 and 36.2 were somewhat commingled and, particularly in the case of the former, disarticulated and highly dispersed. Burial 37.3 (a neonatal infant) was only represented by four incompletely-formed deciduous tooth crowns, and thus its body position was indeterminable. The original body positions of six of the single burials (Burials 21, 26, 31, 40, and 41) were also unknown due to the absence and/or high disarticulation and dispersal of the remains (for example, see Figure 3.3). One single burial (Burial 24) was missing its cranium and mandible, including the dentition. Four of the single burials contained semi-flexed individuals: two were lying supine with their knees spread apart (Burials 24 and 34), one was lying on its left sides with its knees oriented to the north (Burial 12), and the other was lying on its right side with its knees oriented to the south (Burial 22). Eight burials exhibited evidence of fire use in the grave pit, in the form of skeletal element charring, two of which were situated together in a triple burial (Burials 37.1 and 37.2). The six single burials which exhibited element charring were Burials 9, 24, 25, 28, 29, and 41. Charring ranged from slight (affecting only a few skeletal elements) to moderate (affecting less than 50% of the skeleton as a whole) and was generally localized on the superior aspect of the skeleton, particularly the cranium and superior torso region (for example, see Figure 3.4). Two graves (Grave 30 and 31) had been disturbed in antiquity, possibly through looting, but only the latter yielded human skeletal material; it was highly disarticulated and scattered from the third through the seventh excavation levels. Most burials were primary interments, having been placed into the burial environment as intact corpses. Two (Burials 28 and 36.1) appeared to have been placed in the grave pit

secondarily as bundles or partial bundles (for example, see Figure 3.5), while the poor condition of four others did not allow their determination as primary or secondary. Table 3.2 summarizes the Khuzhir-Nuge XIV burial characteristics.

Burial depth at Khuzhir-Nuge XIV, for undisturbed burials, ranged from 32 to 54 cm below the modern ground surface (Burials 14 and 40, and Burial 11, respectively), with a mean of 40.5 cm (see Table 3.2). All burials were oriented more or less west-east (cranium to the west), with the exception of Burial 7, which was oriented north-south (cranium to the north). Even in those cases where the orientation of the skeletal material itself could not be ascertained with certainty, due to its high disarticulation, poor condition, or absence, the grave pit was oriented west-east. Completeness, fragmentation, and articulation varied considerably among burials (for example, see Figures 3.6 and 3.7), and will be discussed in detail in Chapter Four.

3.2 Fieldwork Methods

Before the commencement of excavation, "specialists should meet and decide on desirable, potential, and possible research designs and how they may fit into a coherent excavation plan" (Manchester, 1989). Prior to fieldwork at Khuzhir-Nuge XIV, excavation protocols and data collection strategies were planned for a variety of research projects, including the one comprising this thesis. Human taphonomy, with the purpose of explaining the cause and nature of the variable skeletal condition earlier observed by Link (1998), was the focus of this project from its inception. Unfortunately, there is currently no accepted protocol for the collection of human taphonomic data, from inhumations or otherwise. Thus, techniques of meticulous human skeletal excavation and

recovery (see Hunter, 1996; Lovell, 1996; Manchester, 1989; Spriggs, 1989) were taken one step further: all information possible was collected from the burials by a physical anthropologist (the author), while the remains were *in situ*. Although ideal, the scrupulous excavation, documentation, and recovery of human skeletal material, particularly with the direct involvement of a physical anthropologist, is generally not standard practice (Manchester, 1989; Nawrocki, 1995; Stroud, 1989), in Siberia or elsewhere. In this respect, the methodologies employed during this research were largely unprecedented.

The graves at Khuzhir-Nuge XIV were visible on the ground surface as more or less oval clusters of flat-lying 'paving' stones or slabs [2]. The arrangements ranged in size from 2-3 m by 3-5 m, while the slabs, themselves, varied in horizontal dimensions from 10 to over 50 cm. Prior to excavation, rectangular trenches were laid out to encompass the observed 'paving' stone arrangement. Excavation, with trowels and dustpans, commenced with the removal of the sod and the exposure of the first layer of observable stone slabs. Once defined, the first level of stones (Level One) was documented with horizontal and oblique photography, plan and profile drawing at a 1:20 scale, and oral and written descriptions, before being removed. Sediment samples were also collected for laboratory analyses. Excavation of the subsequent layers of stones (Levels Two, Three, et cetera) followed the same procedure as the first. However, once the grave pit was discerned, excavation proceeded only within its confines. The grave pit, normally observable in the second or third excavation level, was generally marked by a distinct oval arrangement of stone slabs, with the long axis oriented more or less west-east.

Often, vertically oriented slabs lined the pit's boundaries, and angled slabs, inclining downwards towards the center, filled its interior (for example, see Figure 3.8).

Human remains were usually located in the fourth through sixth excavation levels, between 34 and 48 cm below the modern ground surface, though this was somewhat dependent on the sizes of the burial's 'paving' slabs. Their discovery initiated increasingly meticulous excavation, which proceeded with soft brushes and plastic or wooden implements only. In most cases, the burial was excavated as a coherent unit, with the skeletal elements left *in situ*, until all the remains were completely exposed. In several instances, high fragmentation, disarticulation, or dispersal of the skeletal material precluded its complete exposure without the prior removal (following adequate documentation, see below) of certain elements or fragments. Generally, skeletal remains were excavated by working from the middle of the grave pit outwards, in order to avoid brushing dirt repeatedly over the same element or elements. Ideally, excavation ended only when the skeletal material was fully exposed from the surrounding matrix and pedestalled. In reality, due to its poor condition, much of the skeletal material could not be completely freed from the support of its surrounding matrix until it was recovered from the burial environment. However, this did not impede data collection (see below).

Archaeology is a destructive process (Brooks and Brooks, 1984; Hunter, 1996). As a result, "archaeological techniques of excavation have been developed to retain as much of the contextual information or evidence as possible" (Brooks and Brooks, 1984). These techniques, applied at Khuzhir-Nuge XIV, included various forms of documentation (see above). At the burial level, documentation of the exposed skeletal remains was even more fastidious. It began with plan drawing (at a 1:20 scale),

horizontal and oblique photography, and close-up photography of various details. Basic burial information was then recorded, including burial disturbance, burial type (single, multiple discrete, or commingled), body orientation (head to foot), body position (extended or semi-flexed), and facial orientation. Measurements of the burial were taken, including maximum length, maximum width, maximum depth (between the highest and lowest points of the skeletal elements), and elevations of the burial level. Element position was also determined, as articulated or disarticulated (see Section 3.4, below); in the latter case, the location and orientation of disarticulated elements were mapped and recorded relative to the rest of the skeletal remains. Next, skeletal indicators of osteobiographical information (such as age at death, sex, pathological lesions, and occupational stress markers), which might have been destroyed during skeletal recovery due to their poor condition, were recorded. For example, if the skeletal remains were highly fragmentary, metric indicators, such as long bone shaft diameters, and non-metric indicators, such as subpubic concavities, both utilized to assess sex, could only be documented while the skeletal elements were *in situ*. Any other relevant information, such as charring exhibited by skeletal elements, remnants of birch bark (possible mortuary wrappings or coverings), unusual limb position, and general observations of skeletal condition were also documented prior to skeletal removal. Finally, the completeness (as a percentage) of the entire skeleton was visually estimated, taking into account both the quantity of skeletal elements and fragments present, and the completeness of the elements and fragments. Although a subjective determination, skeletal completeness was estimated in the same systematic manner for all burials. All of this information was recorded on specific data collection forms (see Appendix A).

Skeletal recovery was meticulous and time consuming because, in addition to removal and packing, it involved collecting further documentation regarding skeletal condition. Presently, there is no accepted protocol for describing the condition of human skeletal remains (for example, see Boddington, 1987; Merbs, 1997; Nawrocki, 1995; Waldron, 1987a; Walker *et al.*, 1988). In fact, in both the archaeological and paleontological literature, the condition of skeletal remains is described inconsistently with a variety of "unimaginative and non-scientific terms" (Garland and Janaway, 1989). Henderson (1987) suggests that this description of condition should include not only "an assessment of the relative completeness of the skeleton," but also "the condition of the bones themselves, for example, as complete or partial, broken or eroded." Thus, for the purpose of this thesis, the term 'condition' has been adopted to refer collectively to three different aspects of skeletal remains: completeness (including simple absence), fragmentation, and articulation. These three aspects will be discussed separately and in detail below and in Chapter Four. Generally, skeletal recovery began at the inferior aspect of the skeleton and progressed superiorly. As each skeletal element was removed, its fragmentation and completeness were recorded (articulation had previously been documented) on specific data collection forms (see Appendix A). In the former case, the fragments comprising each element were counted and the number recorded; in the latter, the percentage complete was visually estimated by the author in the same systematic manner described above. Each element was then packed individually, in a paper bag, cardboard box, or envelope, and with or without plastic bubble wrap for cushioning, as its size and condition dictated. The element name and side (if applicable), as well as the site name, burial number, date, and excavation level, were labeled clearly in duplicate (once

on the outside of the package, and once on a separate paper label inside the package). Questionable elements and fragments were labeled and recorded as accurately as possible. For example, unidentifiable right manual phalangeal fragments or left rib fragments were labeled as such and packed separately, rather than being included with all the other unidentifiable bone fragments. In all cases, the number of fragments was recorded. Teeth were also packed individually in clearly labeled envelopes. In most cases, they were relatively loose and were removed from their respective alveoli in order to prevent subsequent loss and/or identification problems. Teeth were labeled with both the appropriate numbers (based on the FDI System [3]) and their common names, in order to avoid confusion. In most cases, crania were also fragmented; identifiable elements and fragments were packed separately and labeled, while those which could only be assessed as cranial in origin were labeled 'unidentifiable cranial.' After all skeletal elements and fragments were recovered from the grave pit, the burial level was cleaned to the underlying bedrock (usually not more than a few centimeters). During this process, any small fragments which may have been missed were collected, counted, and labeled as 'miscellaneous.' Sieves to screen out minute bone fragments were not used at Khuzhir-Nuge XIV (with two exceptions, Burials 29 and 34; see Lieverse, 1998). Not only would the process of screening thousands of minutely tiny bone fragments (as small as a few square millimeters) from the burial matrix be extremely time consuming, but also, these bone 'flakes' would have contributed limited information towards this project. The excavation and recovery protocols employed at Khuzhir-Nuge XIV adequately collected all relevant data from the burial environments.

3.3 Data Collection Methods

Once removed from the burial environment, the skeletal remains were examined either in a field laboratory (1997), or at Irkutsk State University (1998). The purpose of this examination was twofold. First, due to time constraints during recovery, some documentation required completion. This largely involved duplicating information onto data collection forms (see Appendix A), elaborating on observations, particularly regarding dentition, and attempting to identify 'unidentifiable' fragments with the help of comparative specimens. Second, a basic osteobiography [4] had to be compiled for each individual; again, much of this information was recorded with the help of specific data collection forms (see Appendix A). This involved the assessment of sex, estimation of age at death, and the documentation of any other individualizing features such as stature, indicators of health and subsistence, evidence of injury or pathology, indicators of habitual activities, and evidence of cultural modification. Unfortunately, the poor condition of the remains did not always allow the determination of basic age and sex, much less the latter characteristics.

The sex of immature individuals generally cannot be determined from skeletal remains, as sex specific features do not begin to develop until the onset of puberty (Bass, 1995: 25-26). On the other hand, the sex of mature individuals can usually be determined from skeletal remains, depending on the state of their condition. At Khuzhir-Nuge XIV, sex was assessed with or with out certainty, or not at all, depending on the presence, fragmentation, and completeness of sex determinable skeletal features. A number of standard non-metric cranial and os coxae indicators, as outlined in Bass (1995), Bennet (1993), and Buikstra and Ubelaker (1994) were examined, and several metric traits for

sex determination, as outlined in Bass (1995), Buikstra and Ubelaker (1994), and Montagu (1960) were measured (see Appendix A).

Age at death of immature individuals can usually be estimated quite accurately because it is based on skeletal and dental changes reflecting growth and maturation (Lovell, 1996). Generally, the skeletal remains of immature individuals recovered from Khuzhir-Nuge XIV were highly fragmented and incomplete, precluding the assessment of age based on skeletal factors such as long bone lengths, appearances of ossification centers, or stages of epiphyseal union; there were a few exceptions (Burials 16, 37.1 and 37.2; see Lieverse, 1997, 1998). On the other hand, the immature individuals did exhibit a high presence of unfragmented and complete deciduous and permanent dentition, in varying states of formation and eruption. Teeth were compared with a dental development chart compiled by Ubelaker (1989: figure 71), and an age range of two years was assigned to each immature individual, based on the respective stages of dental formation and eruption. In several cases, the eruption stage of some teeth could not be directly observed due to the condition of the surrounding alveolar bone; thus, eruption had to be inferred from the tooth's formation stage and degree of attrition, as well as the eruption stages of neighboring dentition.

Estimation of the biological age [5] at death of mature individuals is generally less accurate than that of immature individuals, because it depends almost entirely on the degenerative changes of skeletal and dental tissues (Bass, 1995: 12; Lovell, 1996). In some cases at Khuzhir-Nuge XIV, skeletal indicators of age-associated degenerative changes were present, and it was possible to estimate age on this basis. The Todd (1920, 1921) and Suchey-Brooks (Suchey and Katz, 1986; Suchey *et al.*, 1988) pubic

symphyseal aging techniques, as well as the Meindl and Lovejoy method of iliac auricular surface aging (Lovejoy *et al.*, 1985; Meindl and Lovejoy, 1989), were utilized to assess age at death for six burials. In addition, indicators of age associated osteoarthritic degeneration were considered when they were observable. Cranial suture closure was not employed to estimate age at death for two reasons: 1) closure rates between and within individuals vary considerably (Buikstra and Ubelaker, 1994: 32), and 2), the state of fragmentation and completeness exhibited by the Khuzhir-Nuge XIV crania prevented the scoring of closure degree for the recommended ten ectocranial, four palatal, and three endocranial sutures (Buikstra and Ubelaker, 1994: 32-33). The Iscan and Loth sternal rib end aging technique (Iscan *et al.*, 1984, 1985) was also not employed, due to the poor condition and/or absence of fragile sternal rib ends from the Khuzhir-Nuge XIV burials.

For most of the mature individuals at Khuzhir-Nuge XIV, biological age at death could not be determined from skeletal indicators because of their fragmented and incomplete state. On the other hand, teeth were recovered from most individuals, regardless of their skeletal condition, a common occurrence among archaeological remains (Walker *et al.*, 1991). Although varying among populations, there is generally a strong correlation between dental attrition and age (Hillson, 1996: 239; Hillson, 1986: 184-185; Walker *et al.*, 1991). Thus, for most of the mature individuals, tooth wear severity, based on observations of enamel degeneration and dentin exposure, was compared with that exhibited by the others from this site, in order to establish relative ages at death. These relative ages were grouped into one of three broad biological age categories: young adult, middle adult, and old adult. When possible, the independent

skeletal age indicators mentioned above were also compared with dental attrition. In a modern population, biological age categories of young, middle, and old adult are associated with chronological age ranges of 20 to 35 years, 35 to 50 years, and 50 years and older, respectively (Buikstra and Ubelaker, 1994: 9).

3.4 Analytical Methods and Presentation of Results

The purpose of analysis was to explore the relationships, or associations, between skeletal condition at Khuzhir-Nuge XIV and a number of observed, independent variables representing the possible taphonomic factors responsible. These associations were then applied to the four hypotheses introduced in Chapter Two (see Chapter Four, Section 4.6), in order to address the research objectives directly. Three aspects of condition were investigated: completeness, fragmentation, and articulation. Each of these three aspects constituted a dependent (or response) variable, and the association of each with the independent variables was examined. In addition, relationships between the independent variables, themselves, were ascertained in order to provide further insights into their effects on skeletal condition. The independent variables included three intrinsic factors (element type, element side, and age at death) and eight extrinsic factors (burial depth, element charring, presence of birch bark, body position, burial type, distance between the burial and underlying bedrock, burial disturbance, and burial integrity). Appendix B is an extensive burial database comprising the three dependent variables and eleven independent variables for each element (or element group) of each burial. It also summarizes the codes utilized to represent each variable category. Most variables were nominal, or both categorical and qualitative (Freeman, 1987: 6-7); two (age at death and

distance between the burial and underlying bedrock) were ordinal, or both categorical and quantitative (Freeman, 1987: 6-7); and three (completeness, fragmentation, and burial depth) were numerical (see below).

The unit of analysis utilized was a single skeletal element, or in some cases, a group of small related elements (see below). The use of this lowest unit for analysis was beneficial for two reasons. First, it increased sample size from 36 individuals to 2964 skeletal elements and element groups (see Appendix B), which also positively affected the statistical significance of the results. Second, the utilization of the lowest level of analysis allowed for upward mobility into higher levels, such as element type, element side, and (ultimately) a complete individual. Thus, it provided the opportunity to manipulate and analyze data in a variety of ways.

Completeness, recorded for each skeletal element, was expressed as a percentage visually estimated by the author during skeletal recovery (see Section 3.2 above). If an element was not present, its completeness was expressed as zero. For the purpose of simplicity, a number of skeletal elements were grouped together. These element groups included the left and right ribs (12 elements each), the cervical vertebrae (7 elements), the thoracic vertebrae (12 elements), the lumbar vertebrae (5 elements), the left and right carpals (8 elements each), the left and right metacarpals (5 elements each), the left and right manual proximal phalanges (5 elements each), the left and right manual intermediate phalanges (4 elements each), the left and right manual distal phalanges (5 elements each), the left and right tarsals, excluding the calcanei and tali which were represented independently (5 elements each), the left and right metatarsals (5 elements each), the left and right pedal proximal phalanges (5 elements each), the left and right

pedal intermediate phalanges (4 elements each), and the left and right pedal distal phalanges (5 elements each). In these cases, completeness reflected that of the group as a whole, rather than the total of its elements, and was calculated by dividing the total element completeness by the number of elements (or 'fragments') within the entire group. For example, if the left metacarpals were represented by two elements, both 100% complete, the left metacarpal group completeness would be expressed as 200% (the total element completeness) divided by five (the number of left metacarpals or 'fragments' comprising the group), thus yielding a completeness of 40%.

Fragmentation, recorded for each skeletal element or element group, was expressed as a ratio between the completeness and the number of fragments recovered, rather than simply as the number of fragments. This was necessary in order to establish the significance of fragmentation, by differentiating among skeletal elements which were represented by similar numbers of fragments even though their completeness percentages may have been very different from one another. For example, the number of fragments for an element represented by only one fragment would be one, regardless of whether it was 10, 50, or 100% complete. In these three cases, the significance of each element's single fragment, in terms of overall element condition, would have been very different. The fragmentation ratio, on the other hand, accounted for both the number of fragments recovered and the completeness of each element. For both single elements and element groups, it was calculated by dividing the completeness percentage by the number of fragments, and then multiplying by the number of elements within the group. For the previous examples, the fragmentation ratios would be 10, 50, and 100, respectively, with 100 representing an ideally complete and unfragmented element. Thus, the

fragmentation ratio for each element reflected the average percentage of its completeness which was exhibited by each of its fragments. For example, a 50% complete element consisting of two fragments would have a fragmentation ratio of 25 (each fragment would represent an average of 25% of the complete element), while a 50% complete element consisting of 50 fragments would have a fragmentation ratio of one (each fragment would represent an average of 1% of the complete element). If an element was not present (and thus its completeness percentage and number of fragments were both zero), the fragmentation ratio was not calculated (as division by zero is undefined).

Articulation of skeletal elements (or their location and orientation in correct anatomical position with respect to adjacent elements and the skeleton as a whole) was expressed as a nominal variable coded as articulated or disarticulated (see Appendix B for explanation of codes). Naturally, this was a somewhat subjective determination, largely dependant on both the degree of articulation/disarticulation (the distance an element was found from its original anatomical position, as well as the extent it had shifted from its original orientation), and the size of the element in question. For example, assuming original orientation, a phalanx found 10 cm from its original position would have been deemed disarticulated, while a femur would not have. On the other hand, if the femur was oriented with its proximal end distal and its distal end proximal, it would have been determined to be disarticulated even if it was located more or less in its original position. Elements were considered articulated only if they were completely articulated; otherwise they were considered disarticulated. Thus, in those few instances where part of a skeletal element was in articulated position, while another part of it was not, the element was considered disarticulated. For element groups (ribs, vertebrae,

carpals, metacarpals, tarsals, metatarsals, and phalanges), all the elements present had to be in articulated position in order for the group to deemed articulated. Articulation was not recorded for those elements which were not present.

Three intrinsic independent variables were identified (see Appendix B). Element type reflected one of four categories in which bones are generally grouped on the basis of their shape: long, short, flat, and irregular (see Chapter Two, Section 2.2). The placement of elements into these categories followed that outlined in Bass (1995: 4). Long bones comprised the clavicles, humeri, radii, ulnae, femora, tibiae, and fibulae. Short bones included the metacarpals, metatarsals, and manual and pedal phalanges. Flat bones comprised the parietal, temporal, frontal, and occipital bones, scapulae, ossa coxae, ribs, sterna, and sacra. Irregular bones included all other cranial bones, the vertebrae, carpals, tarsals, and patellae. And finally, the mandibles, which are generally viewed as exceptional (Micozzi, 1991: 55), comprised their own separate category. Element side was represented by two categories, left and right. Naturally, side was only indicated for paired, or bilateral, elements, and only for those for which it could be ascertained. Age at death was reflected by one of seven ordinal categories. For immature individuals, this involved condensing age, which had previously been determined to a range of two years into one of three categories: infant (0 to 3 years), child (3 to 12 years), and adolescent (12 to 20 years) (Buikstra and Ubelaker, 1994: 9). For mature individuals, the categories coincided with their previous 'classification' as young adults, middle adults, or old adults (see above). Mature individuals whose ages spanned two categories were represented by the younger of the two, while mature individuals whose ages could not be assessed more

precisely than 'adult' were represented by a separate category. The codes for all intrinsic independent variable categories are outlined in Appendix B.

Eight extrinsic independent variables were identified (see Appendix B). Three of these, element charring, body position, and burial type, reflected three of the five factors generally accepted as representative of Glaskovo mortuary protocol (see Chapter One, Section 1.4). Element charring, reflecting the use of fire in the grave pit, has often been referred to as 'cremation'. However, because fire use within the graves at Khuzhir-Nuge XIV was localized and resulted in charred, rather than calcined, bone, the term 'charring' will be utilized hereinafter. Elements were identified as either charred or uncharred. Body position, according to the Glaskovo mortuary protocol (see Chapter One, Section 1.4) varied from extended and supine to semi-flexed to squatting. Squatting was not observed at Khuzhir-Nuge XIV, and thus discernible body positions included extended and supine and semi-flexed, only. In a number of cases, body position was unable to be determined due to the absence and/or high disarticulation and dispersal of the remains, and was thus not recorded. Burial type, in the Glaskovo mortuary protocol, was specified only as single or multiple. This was taken one step further, with single, double, and triple burials identified. The codes for these independent variable categories are outlined in Appendix B.

The remaining two factors accounting for variation in the Glaskovo mortuary protocol, size and shape of 'paving' stone arrangements, and grave goods (see Chapter One, Section 1.4) were not included in this analysis because they were not considered to be relevant. Recent work at Khuzhir-Nuge XIV has suggested that the 'paving' stone arrangements were in fact the remnants of grave cairns, or markers, rather than

intentional grave pavings (Ross, 1998). Thus, their size and shape was not a reflection of mortuary practice, but rather the result of the natural disintegration of the cairns over thousands of years. Type and extent of grave goods, even metal grave goods (see Chapter Two, Section 2.2) affect minimally, if at all, the condition of human skeletal remains. Thus, their variable presence within the Khuzhir-Nuge XIV burial environments was deemed insignificant in this study, in terms of their effects on skeletal condition.

Five other extrinsic independent variables, burial depth, distance between the burial and underlying bedrock, presence of birch bark, burial integrity, and burial disturbance, were included in the analysis. Burial depth was perhaps most obvious of these (see Chapter Two, Section 2.2). It was calculated from the profile drawings (both cross and longitudinal sections at a 1:20 scale) which had been prepared for each burial during excavation (see Section 3.2 above). Because depth varied within each grave, the maximum depth, calculated from the top of a surface 'paving' slab, was recorded. The distance between the burial and underlying bedrock did not vary as much as burial depth, and had not been as accurately recorded. Thus it was expressed as an ordinal variable represented by two different depth ranges. The presence of birch bark within the burial environment was another independent variable identified. It was a nominal variable coded as present or absent. Burial integrity was also expressed as a nominal variable, coded as primary or secondary. In some cases, the poor condition of the skeletal remains precluded assessment of integrity. Finally, burial disturbance, possibly through looting, was also expressed as a nominal variable, and coded as disturbed or undisturbed. The codes for these independent variable categories are outlined in Appendix B.

Utilizing SPSS 9.0, one-way analysis of variance (ANOVA) was conducted for both completeness and fragmentation (numerical variables transformed to their square roots) by each single factor (independent) variable. ANOVA was chosen because it is generally utilized to describe the relationship between a numerical dependent variable and an independent variable with more than two categories (Kleinbaum *et al.*, 1988: 12-13). ANOVA analyzes the variability in data to determine "how much can be attributed to differences in the μ's [population means] and how much is due to the variability in the individual populations" (DeVore and Peck, 1990: 460). In addition to determining the existing differences among means, post hoc range tests, specifically least significant difference (LSD) tests, were conducted to determine exactly which means differed. It was only necessary to conduct LSD tests for those variables with three or more categories. ANOVA was also utilized to determine the percentages of completeness and fragmentation variability which were accounted for by each independent variable. This was calculated from the sums of squares: the 'total' sum (representing the total variability) and the 'between group' sum (representing the variability accounted for by the independent variable). For each independent variable, the latter was divided by the former, and then multiplied by 100 to provide a percentage.

The results of calculations for percentages of completeness and fragmentation variability accounted for by each independent variable are presented in Table 3.3. The positive results of ANOVA and LSD tests for completeness and fragmentation are presented in Table 3.4 and Figures 3.9 to 3.16, and Table 3.5 and Figures 3.17 to 3.23, respectively. Table 3.4 summarizes those independent variables which exhibited statistically significant completeness mean differences, and were therefore significantly

associated with completeness, while Table 3.5 summarizes those independent variables which exhibited statistically significant fragmentation mean differences and were therefore significantly associated with fragmentation. Mean differences were significant between 0 and 0.1. In both tables, variable categories are listed in accordance to their positive associations with completeness and fragmentation (as indicated by their high completeness and fragmentation means). Higher completeness means represent higher completeness percentages, while higher fragmentation means represent higher fragmentation ratios, and thus less fragmentation (or fewer fragments). Categories whose completeness and fragmentation means did not differ significantly are expressed together. For example, regarding burial depth in Table 3.4, elements at a depth of 34 cm did not exhibit a significantly different completeness mean than those at depths of 32, 36, 52, and 86 cm. Thus, the completeness mean for the burial depth category of 34 cm is expressed as a range including the means of those categories which were not significantly different from it.

Figures 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, and 3.16 portray the 95% confidence intervals for the completeness means of the variable categories for element type, age at death, element charring, presence of birch bark, body position, distance between the burial and underlying bedrock, burial disturbance, and burial depth, respectively (those independent variables exhibiting statistically significant completeness mean differences). Figures 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, and 3.23 portray the 95% confidence intervals for the fragmentation means of the variable categories for element type, age at death, element charring, body position, burial type, distance between the burial and underlying bedrock, and burial depth, respectively (those independent

variables exhibiting statistically significant fragmentation mean differences). In all figures, the horizontal distances between the mean intervals correspond to their significant differences. Thus, intervals which do not overlap horizontally exhibit significant difference, while those which do overlap exhibit little or no significant difference (depending on the degree of overlap). Tables and graphs were not prepared for those independent variables which did not exhibit significant associations with completeness and fragmentation because their negative results will not be discussed in detail (see Chapter Four)

Binary logistic regression was conducted for articulation, again utilizing SPSS 9.0. Logistic regression was chosen because it is generally utilized to describe the relationship between a nominal dependent variable and an independent variable (Kleinbaum *et al.*, 1988: 12-13). Binary logistic regression, like all forms of regression analysis, attempts to "use information about *x* to draw some type of conclusion concerning *y*" (DeVore and Peck, 1990: 364); however, it is most suitable to models where the dependent variable is dichotomous (such as articulation). In all cases, the last (numerically highest) category of the independent variable was used as a constant to which the other categories were compared. The results of the binary logistic regression analyses were also utilized to determine the percentages of articulation variability which were accounted for by each independent variable. This was calculated from the log likelihoods: the 'initial' log likelihood (indicating the articulation variability which was not accounted for prior to analysis) and the 'variable' log likelihood (indicating the articulation variability which was not accounted for after analysis with each independent

variable). For each independent variable, the difference between the two was divided by the latter and then multiplied by 100 to provide a percentage.

The results of calculations for the percentages of articulation variability accounted for by each independent variable are presented in Table 3.3, together with those of completeness and fragmentation. The positive results of binary logistic regression analyses for articulation are presented in Table 3.6, which includes those independent variables with at least one category exhibiting a statistically significant correlation with articulation. Again, significance is between 0 and 0.1. For each variable category, the correlation with articulation is indicated as significant positive, significant negative, or insignificant. Because of the choice of category codes for articulation (1 for articulated and 2 for disarticulated, see Appendix B), the positive correlation of an independent variable category with articulation indicated an increased likelihood for disarticulation, while the negative correlation indicated an increased likelihood for articulation. Table 3.6 did not include those independent variables which exhibited no significant associations with articulation because their negative results will not be discussed in detail (see Chapter Four).

In addition to investigating associations between dependent and independent variables, associations among most independent variables were also examined with SPSS 9.0. ANOVA and LSD tests were utilized to assess the relationships between burial depth and the independent variables of age at death, element charring, presence of birch bark, body position, burial type, distance between the burial and underlying bedrock, burial disturbance, and burial integrity (element type and element side were not included because, ideally, these variables would have been the same for each burial). Crosstabs

tests, providing measures of association for two-way tables, were utilized to ascertain the relationships between the previously mentioned independent variables other than burial depth. Crosstabs tests were utilized because, unlike binary logistic regression, they do not require dependent and independent variables, and thus test for simple association, rather than causation. Table 3.7 lists all independent variables (except element side and element type), and indicates whether or not they exhibited statistically significant associations with one another.

Table 3.1
Khuzhir-Nuge XIV: Basic Demographic Information

Burial	Sex	Age [1]
7	Probable Male	Young Adult
9	Male	Old Adult
10	Undetermined	Young Adult
11	Male	Middle Adult
12	Undetermined	Young Adult
14	Male	Middle-Old Adult
15	Male	Young-Mid Adult
16	Undetermined	Child (7-9)
17	Undetermined	Child (5-7)
19	Female	Middle-Old Adult
21	Undetermined	Adult
22	Undetermined	Adult
23	Undetermined	Adult
24	Undetermined	Adult
25	Probable Male	Middle Adult
26	Undetermined	Child (4-6)
27.1	Male	Middle Adult
27.2	Undetermined	Child (9-11)
27.3	Undetermined	Child (4-6)
28	Probable Female	Adult
29	Male	Old Adult
30	*	*
31	Undetermined	Adult
32	Female	Old Adult
33	Undetermined	Child (3-5)
34	Male	Young Adult
35.1	Probable Male	Adolescent (17-20)
35.2	Undetermined	Child (8-10)
36.1	Undetermined	Middle Adult
36.2	Undetermined	Child (4-6)
37.1	Undetermined	Adolescent (14-17)
37.2	Undetermined	Adolescent (14-17)
37.3	Undetermined	Infant (neonate)
38	Male	Middle Adult
39	Undetermined	Child (9-11)
40	Undetermined	Infant (2-3)
41	Undetermined	Undetermined

Table 3.2
Khuzhir-Nuge XIV: Summary of Burial Characteristics

Burial	Compl	Frag	Artic	Age	Depth	Char	Bark	BPos	BType	Bdrk	Distur	Integ
7	35	763	28/28	4	34	2	2	1	1	2	1	1
9	80	1670	87/87	6	48	1	1	1	1	1	1	1
10	20	510	13/13	4	44	2	2	1	1	1	1	1
11	98	686	139/171	5	54	2	2	1	1	1	1	1
12	15	631	11/11	4	34	2	2	2	1	2	1	1
14	55	791	32/32	5	32	2	2	1	1	1	1	1
15	70	587	49/54	4	38	2	2	1	1	1	1	1
16	20	365	18/26	2	36	2	2	1	1	2	1	1
17	10	227	10/10	2	52	2	2	1	1	1	1	1
19	50	905	37/37	5	40	2	2	1	1	1	1	1
21	10	145	1/8	7	36	2	2	*	1	1	1	*
22	15	414	15/15	7	34	2	2	2	1	1	1	1
23	15	1008	17/17	7	34	2	2	1	1	1	1	1
24	30	740	21/21	7	36	1	2	2	1	1	1	1
25	20	1847	18/18	5	48	1	1	1	1	1	1	1
26	10	371	0/5	2	38	2	2	*	1	1	1	*
27.1	75	1061	51/51	5	44	2	2	1	3	1	1	1
27.2	40	1040	28/28	2	44	2	2	1	3	1	1	1
27.3	20	504	9/9	2	44	2	2	1	3	1	1	1
28	40	632	0/18	7	48	1	1	*	1	1	1	2
29	80	1495	92/107	6	40	1	1	1	1	1	1	1
30	0	0	*	*	48	*	2	*	*	*	2	*
31	15	368	0/8	7	86	2	2	*	1	1	2	1
32	75	1879	51/51	6	38	2	2	1	1	1	1	1
33	10	1162	7/7	2	44	2	2	1	1	1	1	1
34	70	1631	50/50	4	46	1	1	2	1	1	1	1
35.1	55	1906	38/38	3	42	2	2	1	2	1	1	1
35.2	30	1474	18/18	2	42	2	2	1	2	1	1	1
36.1	40	1039	6/61	5	40	2	2	*	2	1	1	2
36.2	20	726	7/12	2	40	2	2	1	2	1	1	1
37.1	75	2075	36/36	3	38	1	1	1	3	1	1	1
37.2	75	1372	65/65	3	38	1	1	1	3	1	1	1
37.3	0	0	*	1	38	*	1	*	3	1	1	1
38	70	1671	48/57	5	48	1	1	1	1	1	1	1
39	25	863	15/15	2	36	2	2	1	1	1	1	1
40	10	185	5/5	1	32	2	2	*	1	1	1	*
41	5	135	0/2	*	38	1	2	*	1	1	1	*

* missing data
Compl (Completeness): percentage complete estimated for entire skeleton
Frag (Fragmentation): total number of skeletal fragments recovered
Artic (Articulation): number of elements articulated/number of elements present
Age (Individual Age at Death): 1 infant; 2 child; 3 adolescent; 4 young adult; 5 middle adult; 6 old adult; 7 'adult'
Depth (Burial Depth): distance in centimeters from the ground surface
Char (Skeletal Charring): 1 charred; 2 uncharred
Bark (Presence of Birch Bark in the Burial): 1 present; 2 absent
BPos (Body Position): 1 extended and supine; 2 semi-flexed
BType (Burial Type): 1 single; 2 double; 3 triple
Bdrk (Distance Between the Burial and Underlying Bedrock): 1 0-5 cm; 2 5-10 cm
Distur (Burial Disturbance): 1 undisturbed; 2 disturbed
Integ (Burial Integrity): 1 primary; 2 secondary

Table 3.3
Percentage of Variability Accounted for by Independent Variables

Independent Variable	Completeness	Fragmentation	Articulation
Element Type	14.96	34.37	3.06
Element Side	0.01	0	0.22
Age at Death	15.08	8.27	13.89
Burial Depth	13.42	22.83	3.5
Charring	1.46	2.37	0.88
Birch Bark	1.91	0.03	0.14
Body Position	0.69	0.43	3.09
Burial Type	0.01	1.43	11.73
Bedrock	0.2	1.35	0.01
Disturbance	1.48	0.01	4.54
Integrity	0.02	0.07	32.49
Total	**49.24**	**71.16**	**73.55**

Table 3.4
Independent Variables Exhibiting Significant Completeness Mean Differences

Element Type	**Completeness Mean**
2 (short bones)	0.6884
4 (irregular bones)	1.3447
3 (flat bones)	3.0545
1 (long bones)	4.2245
5 (mandibles)	6.6117
Age at Death	**Completeness Mean**
1 (infants)	0.1971
7, 2 ('adults,' children)	1.0942 - 1.1388
4 (young adults)	2.3603
3 (adolescents)	3.3649
5 (middle adults)	3.9723
6 (old adults)	4.5963
Charring	**Completeness Mean**
1 (charred)	5.9182
2 (uncharred)	7.1378
Birch Bark	**Completeness Mean**
2 (absent)	1.903
1 (present)	3.042
Body Position	**Completeness Mean**
2 (semi-flexed)	1.8447
1 (extended/supine)	2.7295
Bedrock	**Completeness Mean**
2 (5 - 10 cm below burial)	1.7107
1 (0 - 5 cm below burial)	2.2898
Disturbance	**Completeness Mean**
2 (disturbed)	0.3768
1 (undisturbed)	2.2838
Burial Depth (in cm)	**Completeness Mean**
52, 86, 34	0.6805 - 1.1458
52, 86, **34**, 36, 32	0.6805 - 1.5447
34, **36, 32**, 44	1.1458 - 1.7104
32, **44**, 42	1.5447 - 2.2017
44, **42**, 48, 38	1.7104 - 2.2338
42, **48, 38**	2.2017 - 2.2338
40, 46	3.3824 - 3.8424
54	8.6977

Table 3.5
Independent Variables Exhibiting Significant Fragmentation Mean Differences

Element Type	**Fragmentation Mean**
1, 5 (long bones and mandibles)	2.4601 - 2.7692
1, **5**, 3 (long bones, mandibles, and flat bones)	2.4601 - 3.2144
5, **3** (mandibles and flat bones)	2.7692 - 3.2144
2 (short bones)	8.5483
4 (irregular bones)	6.3229
Age at Death	**Fragmentation Mean**
7, **3**, 2, 1 (adults, adolescents, children, infants)	2.7974 - 4.0262
7, 3, **2**, 4, 1 (adults, adolescents, children, young adults, infants)	2.7974 - 4.0262
2, **4**, 1, (children, young adults, infants)	3.0926 - 4.0262
7, 3, 2, 4, **1**, 6, 5 (adults, adolescents, children, young adults, infants, old adults, middle adults)	2.7974 - 4.9384
1, **6**, **5** (infants, old adults, middle adults)	4.0262 - 4.9384
Charring	**Fragmentation Mean**
1 (charred)	2.119
2 (uncharred)	4.1219
Burial Type	**Fragmentation Mean**
2, **3** (double and triple)	3.1043 - 3.6727
1 (single)	4.2183
Body Position	**Fragmentation Mean**
2 (semi-flexed)	3.3637
1 (extended /supine)	4.0437
Bedrock	**Fragmentation Mean**
2 (5 - 10 cm below burial)	2.6351
1 (0 - 5 cm below burial)	4.0917
Burial Depth (in cm)	**Fragmentation Mean**
34, 42	1.8569 - 1.9432
34, **42**, 32, 86	1.8569 - 3.6590
42, **32**, 36, 52, 86, 38, 48	1.9432 - 3.7688
32, **36**, 52, 86, 38, 48, 44	2.9140 - 3.9500
32, 36, **52**, 86, 38, 48, 44, 46, 40	2.9140 - 4.7088
42, 32, 36, 52, **86**, 38, 48, 44, 46, 40	1.9432 - 4.7088
32, 36, 52, 86, **38**, **48**, 44, 46	2.9140 - 4.2814
36, 52, 86, 38, 48, **44**, 46	3.3297 - 4.2814
52, 86, 38, 48, 44, **46**, 40	3.5683 - 4.7088
52, 86, 46, **40**	3.5683 - 4.7088
54	**8.4782**

Table 3.6
Independent Variables Exhibiting Significant Correlations with Articulation

Element Type	Articulation Correlation
2 (short bones) 5 (mandibles) 1, 3, 4 (long bones, flat bones, irregular bones)	significant positive significant negative insignificant
Age at Death	**Articulation Correlation**
2, 4, 5, 6, 7 (children, young adults, middle adults, old adults, 'adults') 1, 3 (infants, adolescents)	significant negative insignificant
Element Charring	**Articulation Correlation**
1 (charred) 2 (uncharred)	significant positive significant negative
Burial Integrity	**Articulation Correlation**
1 (primary) 2 (secondary)	significant negative significant positive
Burial Depth	**Articulation Correlation**
(increasing depth)	significant negative

Table 3.7
Associations Among Independent Variables

	Depth	Char	Bark	BPos	BType	BdRk	Distur	Integ	Age
Depth		Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Char			Yes	No	Yes	Yes	No	Yes	Yes
Bark				No	Yes	Yes	Yes	Yes	Yes
BPos					Yes	Yes	No	No	Yes
BType						Yes	Yes	No	Yes
BdRk							Yes	Yes	Yes
Distur								Yes	Yes
Integ									Yes
Age									

Yes: Statistically significant association
No: No statistically significant association

Figure 3.1 (Burial 32; Level 5)
Single Extended and Supine Burial

Figure 3.2 (Burials 27.1, 27.2, & 27.3; Level 6) Multiple Discrete Burials

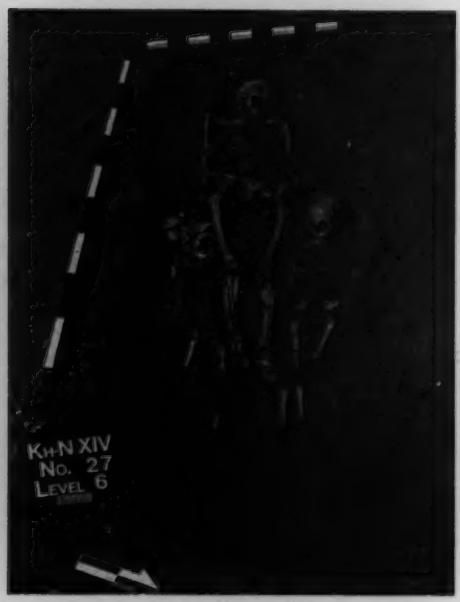


Figure 3.3 (Burial 21; Level 4)
Single Burial of Unknown Body Position

Figure 3.4 (Burial 9; Level 6)
Single Burial with Element Charring

Figure 3.5 (Burials 36.1 & 36.2; Level 6)
Partial Bundle Burial (Slightly Commingled)

Figure 3.6 (Burial 11; Level 4)
Single Burial in Excellent Condition

Figure 3.7 (Burial 23; Level 4)
Single Burial in Poor Condition

Figure 3.8 (Burial 25; Level 2)
Typical Appearance of Grave Pit

Figure 3.9
Element Type Versus Completeness

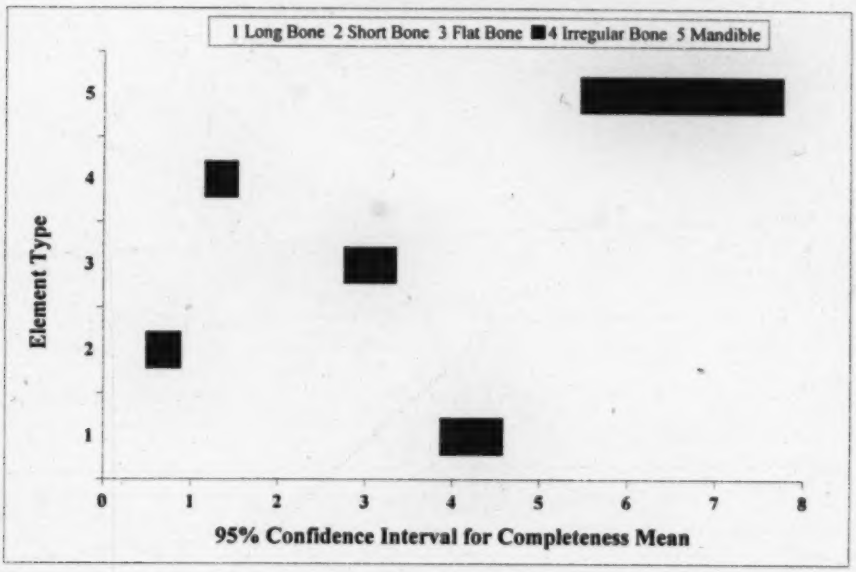


Figure 3.10
Age at Death Versus Completeness

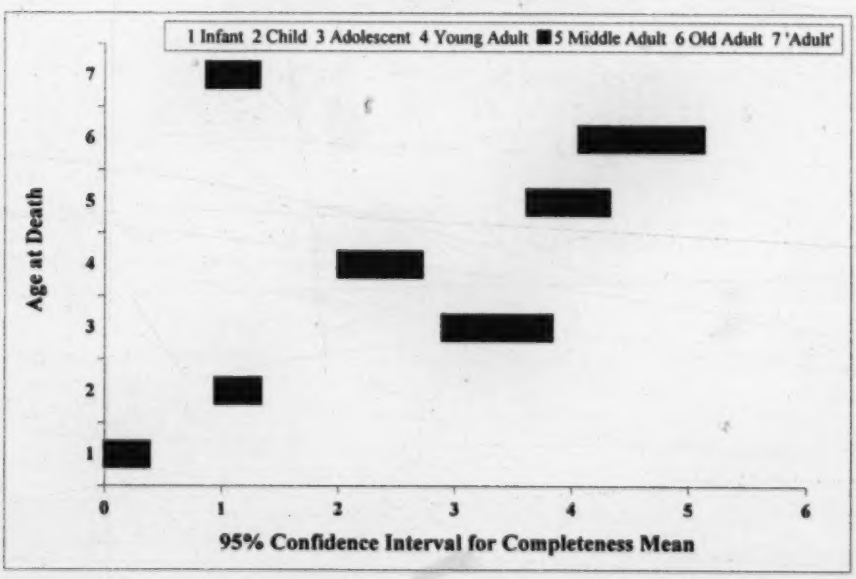


Figure 3.11
Element Charring Versus Completeness

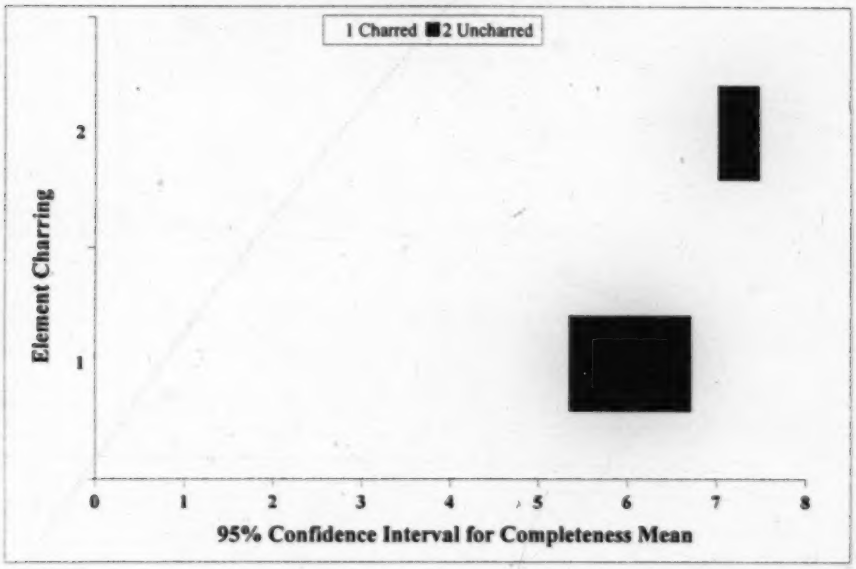


Figure 3.12
Presence of Birch Bark Versus Completeness

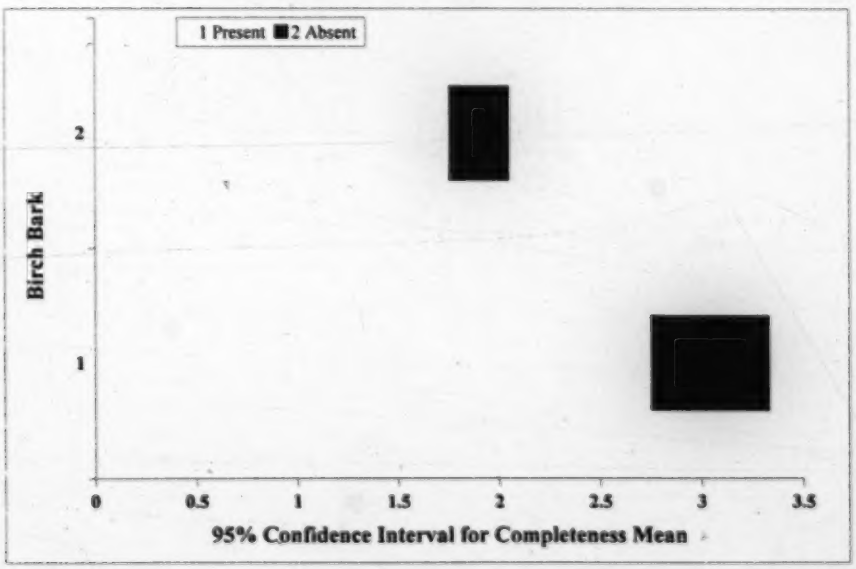


Figure 3.13
Body Position Versus Completeness

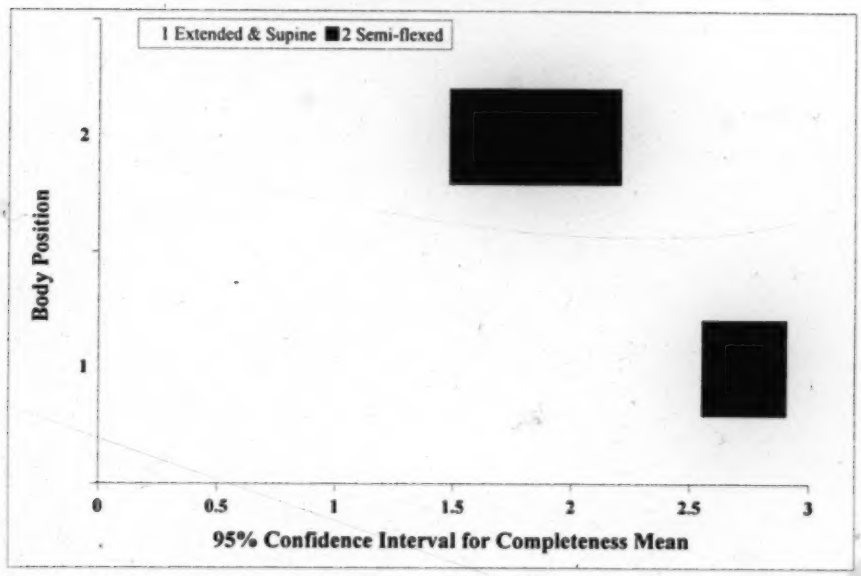


Figure 3.14
Distance Between Burial and Underlying Bedrock Versus Completeness

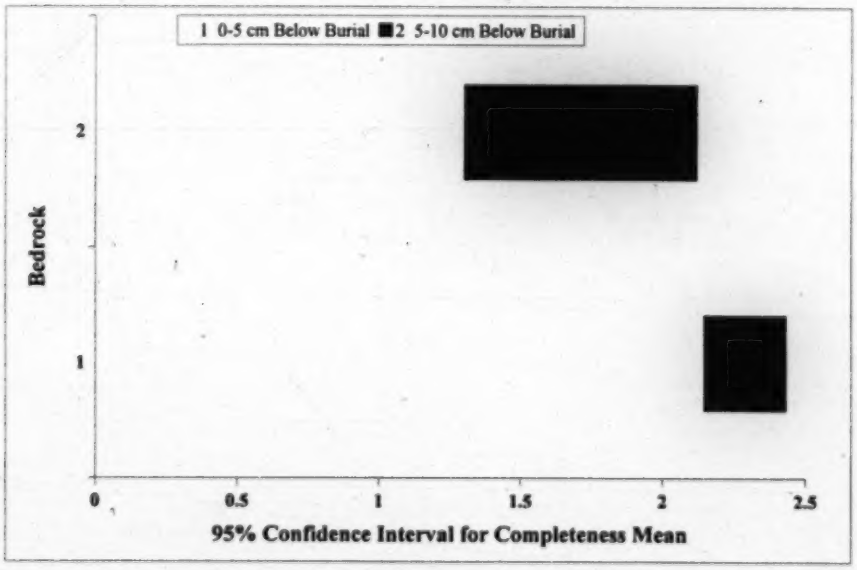


Figure 3.15
Burial Disturbance Versus Completeness

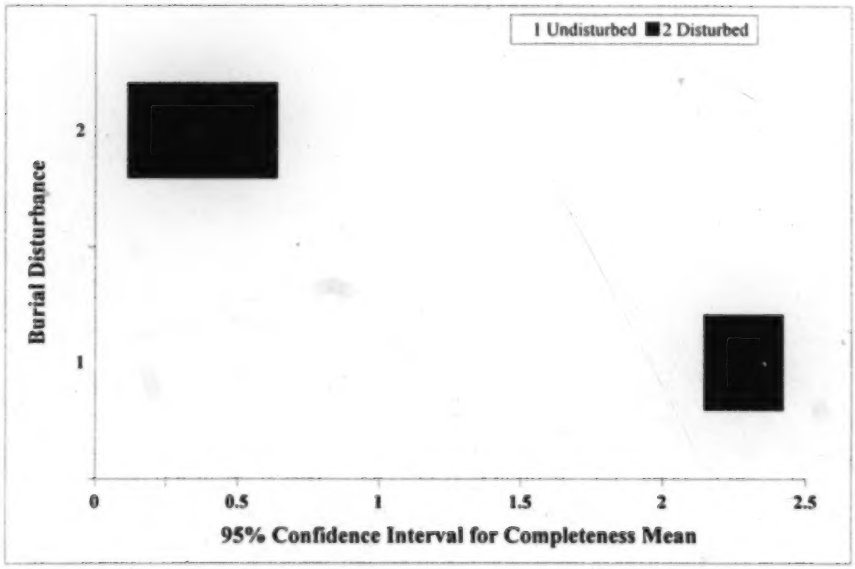


Figure 3.16
Burial Depth Versus Completeness

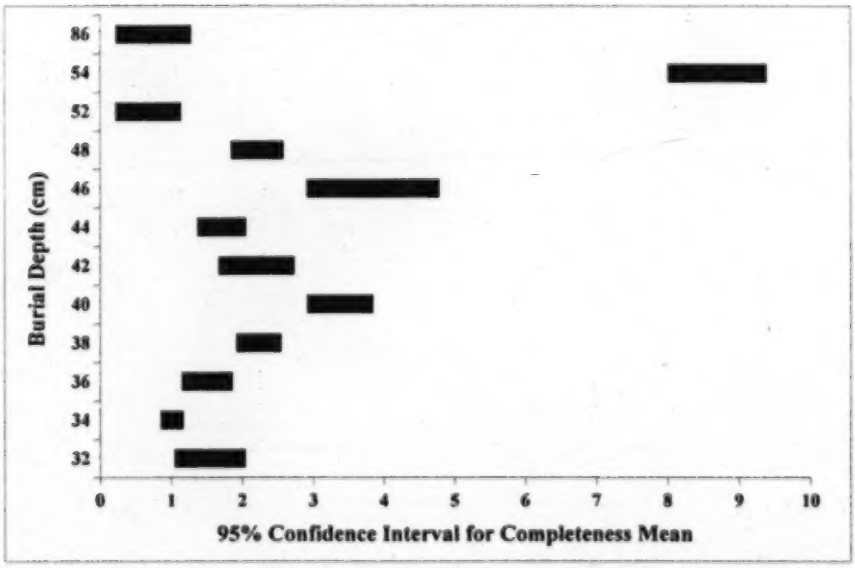


Figure 3.17
Element Type Versus Fragmentation

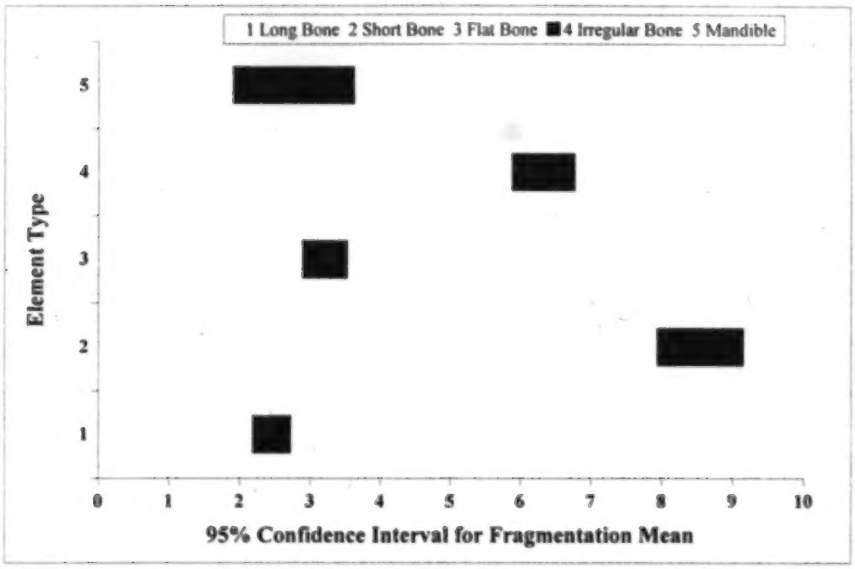

1 Long Bone 2 Short Bone 3 Flat Bone 4 Irregular Bone 5 Mandible
Element Type
1
2
3
4
5
0 1 2 3 4 5 6 7 8 9 10
95% Confidence Interval for Fragmentation Mean

Figure 3.18
Age at Death Versus Fragmentation

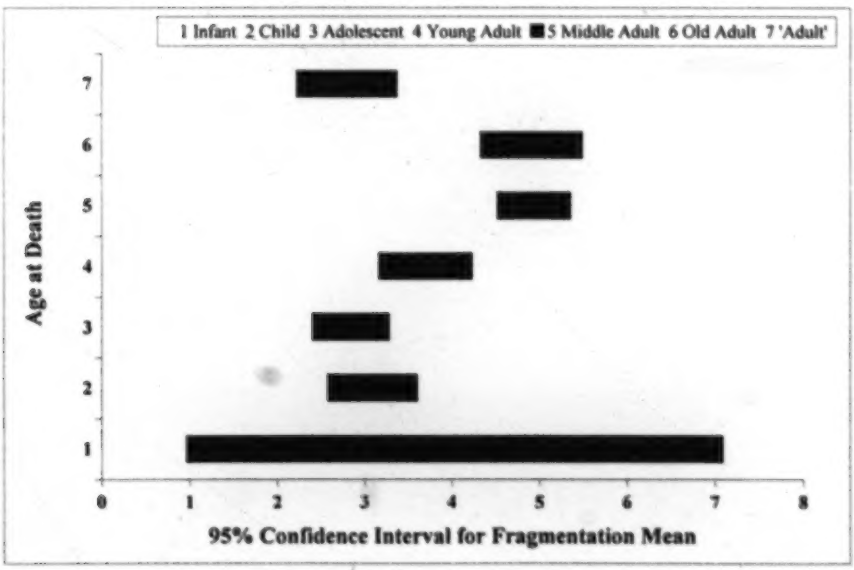


Figure 3.19
Element Charring Versus Fragmentation

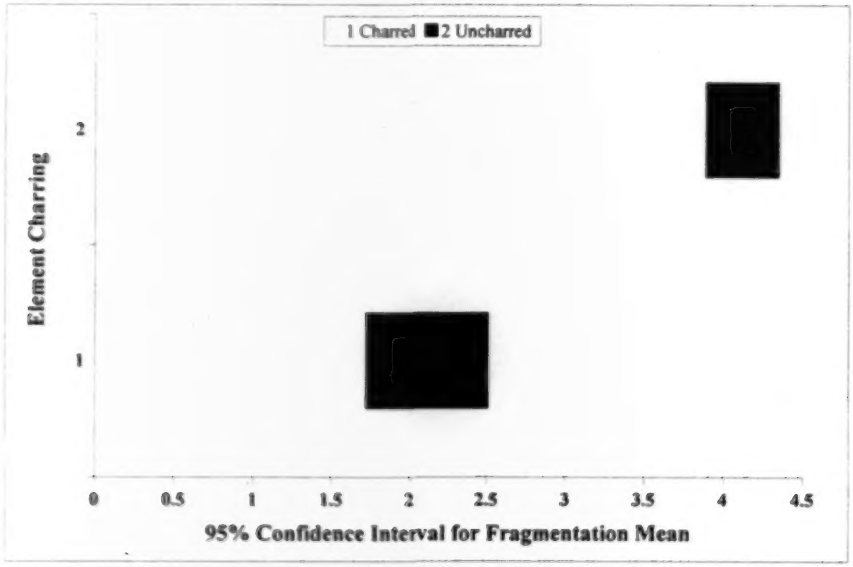


Figure 3.20
Body Position Versus Fragmentation

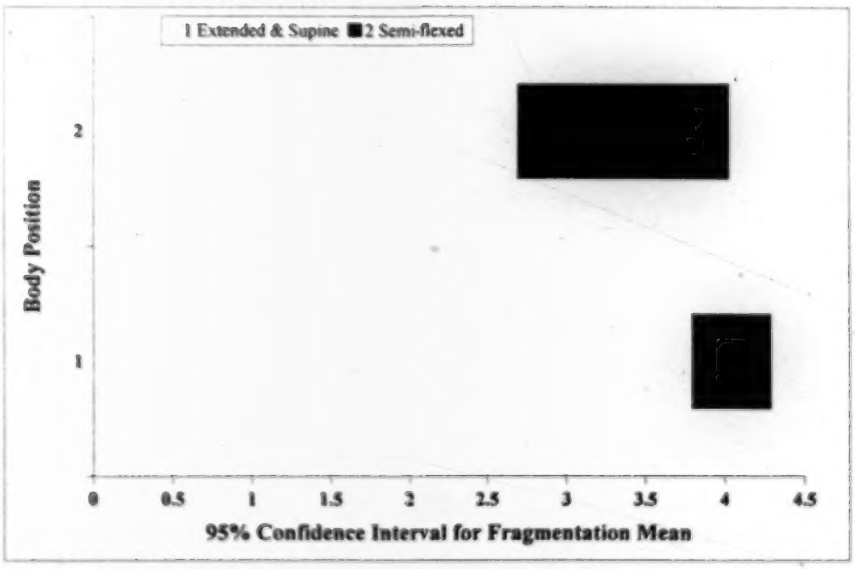


Figure 3.21
Burial Type Versus Fragmentation

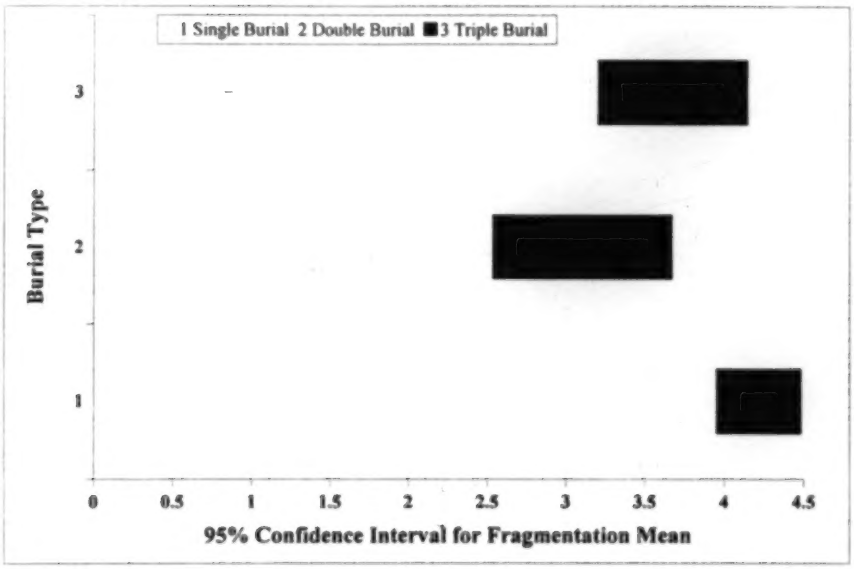


Figure 3.22
Distance Between Burial and Underlying Bedrock Versus Fragmentation

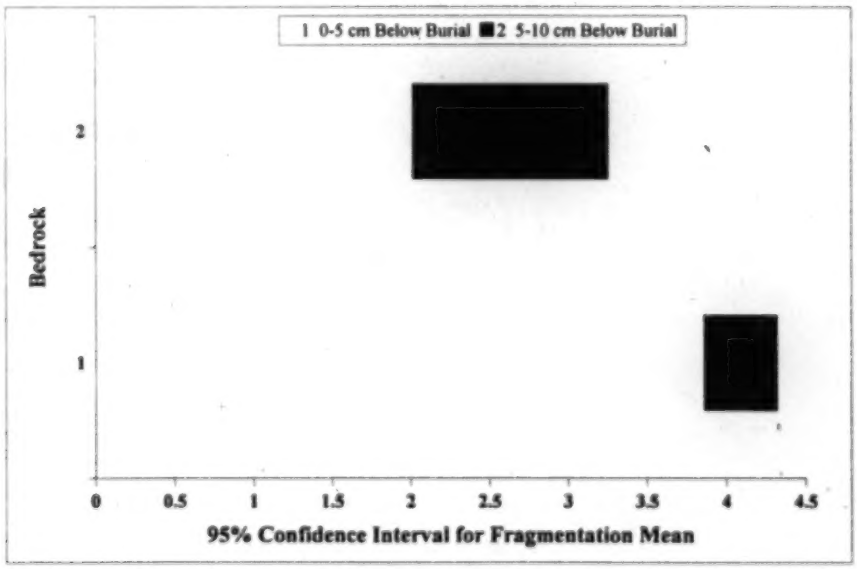
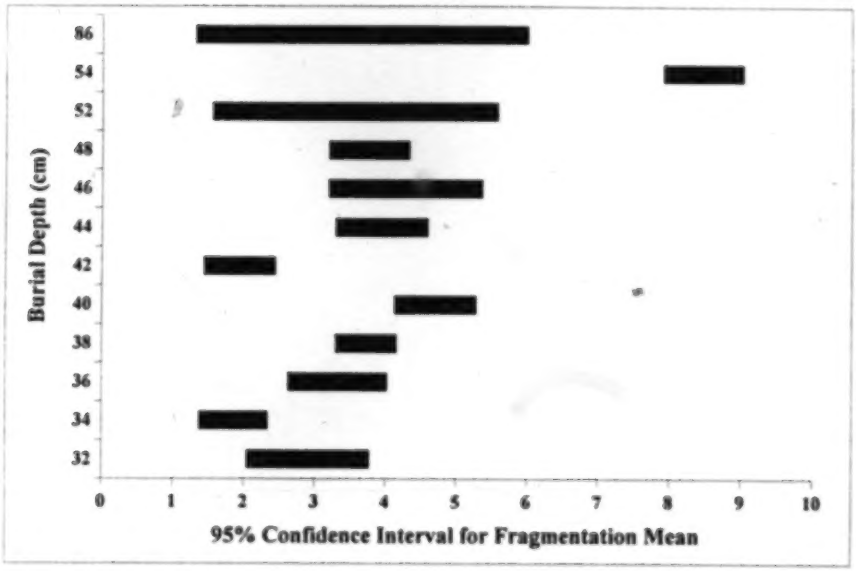


Figure 3.23
Burial Depth Versus Fragmentation



[1] **Infant** - birth to age 3 years; **child** - age 3 to 12 years; **adolescent** - age 12 to 20 years; **young adult** - (biological) age 20 to 35 years; **middle adult** - (biological) age 35 to 50 years; **old adult** - (biological) age 50 years and older (Buikstra and Ubelaker, 1994: 9).

[2] Although these are frequently referred to as 'paving' stones or slabs, recent research at Khuzhir-Nuge XIV suggests that they are actually the remnants of cairns, rather than flat grave pavings (Ross, 1998).

[3] The FDI (Fédération Dentaire Internationale) System divides the dentition into quadrants: 1) right maxillary, 2) left maxillary, 3) left mandibular, and 4) right mandibular. Each tooth within the quadrants is numbered consecutively from 1 (mesial) through 8 (distal). A tooth is referred to by both its quadrant number and its tooth number. For example, tooth 32 (three-two) is the left mandibular second (or lateral) incisor and tooth 17 (one-seven) is the right maxillary second molar (Lovell, 1996).

[4] An osteobiography "refers to aspects of an individual's life history that are recorded in the skeleton" (Lovell, 1996).

[5] Biological age at death, rather than chronological age at death, can be estimated by documenting the skeletal changes that occur in life, including growth, maturation, and degeneration (Bass, 1995: 12).

Chapter Four: Discussion of Results

4.1 Completeness

The three intrinsic independent variables, together, accounted for 30.05% of the variability exhibited by completeness. Two – element type and individual age at death – were significantly associated with completeness, and the other – element side – was not. Element type is a reflection of several intrinsic taphonomic factors, including bone shape, bone size, and bone density. Individual age at death also reflects bone size, in the case of immature individuals, and bone density, in the case of both immature and senile individuals. Larger, denser, and more regularly-shaped bones are generally less susceptible to disintegration by extrinsic taphonomic processes than smaller, less dense, and irregularly-shaped bones. This was proven to be the case at Khuzhir-Nuge XIV, and was reflected by completeness for both element type and individual age at death. All element type categories exhibited statistically significant completeness differences. Mandibles, comprising their own 'exceptional' category, exhibited the highest completeness, followed (consecutively) by long bones, flat bones, irregular bones, and short bones, which exhibited the lowest completeness.

Most age at death categories also exhibited significant completeness differences. Old adults exhibited the highest completeness, followed (consecutively) by middle adults, adolescents, young adults, children and 'adults' together (they were not significantly different from one another), and infants. There was a general trend of increasing completeness associated with increasing age at death, although not all the results were exactly as one would expect. For example, old adults exhibited higher completeness than

both middle adults and young adults, adolescents exhibited higher completeness than young adults, and 'adults' exhibited completeness that was only significantly higher than that of infants. In the case of 'adults,' the low completeness was more or less expected because this category represented those mature individuals whose age at death could not be more precisely determined, largely due to the poor condition of their remains. It is likely that extrinsic taphonomic factors can account for much of the poor completeness exhibited by 'adults.' In fact, of the six 'adult' burials, four were shallow, between 34 and 36 cm below the ground surface, and another was disturbed. The other patterns cannot be accounted for as easily, but likely reflected variation in the extrinsic taphonomic factors affecting the skeletal remains, as well as the difficulties of accurately assessing and categorizing age at death for mature individuals (see Chapter Three, Section 3.3).

The eight extrinsic independent variables, together, accounted for 19.19% of the variability exhibited by completeness. Six – burial depth, presence of birch bark, burial disturbance, element charring, body position, and distance between the burial and underlying bedrock – were significantly associated with completeness, while two – burial type and burial integrity – were not. Among extrinsic independent variables, burial depth accounted for the most variability in completeness. Although burial depth 'categories' exhibited variable completeness that was significantly different from some, but not all, of the others, a general pattern of increasing completeness associated with increasing burial depth was discernable. However, variability in completeness did not solely reflect variability in burial depth, and it is likely that a number of other taphonomic factors played roles. For example, burial depth 'categories' 52 and 86 cm each exhibited very

low completeness, regardless of their increased depth. Each represented one burial, that of a child and a disturbed burial, respectively (see Appendix B), indicating that these factors negatively affected completeness, regardless of the positive effects of increased burial depth.

Those elements associated with birch bark exhibited significantly higher completeness than those not associated with birch bark. Birch bark, possibly a mortuary wrapping or covering, may have acted to impede the rate of both soft tissue and skeletal decomposition. The fact that remnants of it remained after several thousand years indicates that the decomposition rate of the birch bark, itself, was relatively slow. Thus, it is likely that birch bark wrappings or coverings protected skeletal remains, at least to some degree, even up to the time of excavation. It is also probable that other taphonomic factors, most notably burial depth (see Section 4.4 below), may have partially contributed to the increased element completeness, as well as the presence of the birch bark, itself.

Skeletal elements recovered from disturbed burials exhibited significantly lower completeness than those recovered from undisturbed burials. Disturbance negatively affects the completeness of skeletal material by both directly damaging and indirectly dispersing it. In fact, in one case at Khuzhir-Nuge XIV ('Burial' 30), burial disturbance was associated with the complete absence of skeletal material.

Charred elements, the result of localized fire use in the grave pit, exhibited significantly lower completeness than uncharred elements. The decreased completeness of charred skeletal elements is likely a reflection of their increased fragmentation (see Section 4.2 below) and warping, characteristics generally associated with 'cremated' remains, as well as their increased disarticulation (see Section 4.3 below). Highly

fragmented, warped, and disarticulated skeletal remains are generally less identifiable, and are thus more likely to be recorded as incomplete or even absent.

Body position was another independent variable significantly associated with completeness; elements from semi-flexed burials exhibited significantly lower completeness than those from extended and supine burials. However, it is most likely that this pattern reflected variation in other taphonomic factors, most notably burial depth (see Section 4.4 below). Three of the four semi-flexed burials at Khuzhir-Nuge XIV were shallow burials, located between 34 and 36 cm below the ground surface (see Appendix B). Because decreasing burial depth is generally associated with decreasing skeletal condition, the poor completeness of these burials likely reflected, at least to some extent, their shallow burial depth rather than their semi-flexed body position.

Among extrinsic independent variables significantly associated with completeness, the distance between the burial and underlying bedrock accounted for the least variability. Furthermore, its association with completeness was not as anticipated. Increasing distance between the burial and hard underlying bedrock (in the form of sediment depth) should have acted to cushion skeletal elements and decrease their degradation from both underlying and overlying pressures, but the opposite was found to be true. Skeletal elements located between 5 and 10 cm above the underlying bedrock exhibited significantly lower completeness than those located between 0 and 5 cm above the underlying bedrock. This pattern can likely be accounted for by variation in other taphonomic factors, most notably burial depth (see Section 4.4 below). At Khuzhir-Nuge XIV, only three burials were associated with (burial to underlying bedrock) distances of 5 to 10 cm, and all three were shallow burials, between 34 and 36 cm below the ground

surface (see Appendix B). Because decreasing burial depth is generally associated with decreasing skeletal condition, the poor completeness of these three burials likely reflected, at least to some degree, their shallow burial depth rather than the greater distance between them and the underlying bedrock.

Taken together, the eleven (intrinsic and extrinsic) variables included in analyses accounted for 49.24% of the variability exhibited by completeness. Element type, individual age at death, and burial depth were by far the most significant variables, accounting for 43.46% of completeness variability. 50.76% of completeness variability remained unaccounted for.

4.2 Fragmentation

The three intrinsic independent variables, together, accounted for 42.64% of the variability exhibited by fragmentation. As with completeness, both element type and individual age at death were significantly associated with fragmentation, while element side was not. Some element type categories exhibited statistically significant fragmentation differences. Short bones exhibited the lowest fragmentation, followed (consecutively) by irregular bones, flat bones (which were not significantly different from mandibles), mandibles (which were not significantly different from long bones or flat bones), and finally long bones (which were not significantly different from mandibles). At first glance, this pattern appeared contrary to that expected, but it was not. Because of their small sizes and low density, short bones, and to a lesser extent, irregular bones, were only identifiable if they were unfragmented or slightly fragmented. For example, 25 fragments of a left proximal pedal phalanx would have been so small and friable that they

would have been collected and identified only as 'pedal fragments,' rather than 'proximal pedal phalangeal fragments.' Those skeletal elements which were absent or unidentifiable (of which most were short bones and irregular bones; see Appendix B) were not assigned a fragmentation ratio, and were excluded from analysis. Thus, the fragmentation of element type categories appeared to be inversely related to bone size and density because larger and denser elements remained identifiable despite their high fragmentation, not because they were more susceptible it.

The fragmentation pattern exhibited by the age at death categories did not exhibit the same 'inverse' relationship that the element type categories did, because, ideally, each age at death category was represented by the same skeletal element types. Nevertheless, the pattern was quite complex. Old adults and middle adults exhibited the lowest fragmentation (which were not significantly different from one another or that of infants), followed (consecutively) by infants (which were not significantly different from any other age categories), young adults (which were not significantly different from children or infants), children (which were not significantly different from 'adults,' adolescents, young adults, or infants), and 'adults' and adolescents (which were not significantly different from one another, children, or infants). Similar to completeness, there was a general trend of decreasing fragmentation associated with increasing age at death, although the results were not exactly as one would expect. For example, old adults exhibited less fragmentation than young adults, infants exhibited less fragmentation than young adults, children, 'adults,' and adolescents, children exhibited less fragmentation than 'adults' and adolescents, and 'adults' exhibited the highest fragmentation. Again, in the case of 'adults,' the high fragmentation was more or less expected because 'adults'

represented those mature individuals whose age at death could not be more precisely determined, largely due to the poor condition of their remains. It is likely that extrinsic taphonomic factors, most notably burial depth (see above), can account for much of the high fragmentation exhibited by 'adults.' In the case of infants, the category was represented by only five cranial elements from one burial, a sample size too small for significant analysis. The other patterns can not be accounted for as easily, but likely reflected variation in the extrinsic taphonomic factors affecting the skeletal remains, as well as the difficulties of accurately assessing and categorizing age at death for mature individuals (see Chapter Three, Section 3.3).

The eight extrinsic independent variables, together, accounted for 28.52% of the variability exhibited by fragmentation. Five – burial depth, element charring, burial type, distance between the burial and underlying bedrock, and body position – were significantly associated with fragmentation, while three – presence of birch bark, burial disturbance, and burial integrity – were not. As with completeness, burial depth accounted for more fragmentation variability than any other extrinsic independent variable. Although burial depth 'categories' exhibited variable fragmentation that was significantly different from some, but not all, of the others, a general pattern of decreasing fragmentation associated with increasing burial depth was discernable. However, variability in fragmentation did not solely reflect variability in burial depth, and it is likely that a number of other taphonomic factors played roles. For example, burial depth 'category' 52 cm exhibited median fragmentation, regardless of its increased depth. This 'category' was represented by one burial, that of a child (see Appendix B),

indicating that this factor negatively affected fragmentation, regardless of the positive effects of the increased burial depth.

Among extrinsic independent variables, element charring accounted for the second most variability in fragmentation. Charred elements, the result of localized fire use in the grave pit, exhibited significantly higher fragmentation than uncharred elements. This was more or less expected, as increased fragmentation is a characteristic generally associated with 'cremated' remains.

Burial type was also associated with fragmentation; single burials exhibited significantly lower fragmentation than double and triple burials, which did not differ significantly from one another. It is most likely that this pattern reflected variation in other taphonomic factors, most notably age at death (see Section 4.4 below). Of the two triple burials (Graves 27 and 37), only one individual was an adult, while two were children and two were adolescents. The sixth was a neonatal infant represented by no skeletal elements, and was thus not included in the analysis for this variable (see Appendix B). Of the two double burials (Graves 35 and 36), again, only one individual was an adult, while one was an adolescent and two were children (see Appendix B). Thus, it is more probable that the high fragmentation exhibited by double and triple burials were resultant of their age at death, as well as other taphonomic factors, rather than the number of individuals within the grave.

As with completeness, the distance between the burial and underlying bedrock was not associated with fragmentation as it had been expected to. Skeletal elements located between 5 and 10 cm above the underlying bedrock should have been more cushioned from underlying and overlying pressures, and thus less fragmented, than those

located between 0 and 5 cm above the bedrock. Instead, the former exhibited significantly higher fragmentation than the latter. Again, this pattern can likely be accounted for by variation in other taphonomic factors, most notably burial depth (see Section 4.4 below), as all three of the burials exhibiting (burial to underlying bedrock) distances of 5 to 10 cm were also shallow burials, between 34 and 36 cm below the ground surface (see Appendix B).

Taken together, the eleven (intrinsic and extrinsic) variables included in analyses accounted for 71.16% of the variability exhibited by fragmentation. Again, element type, age at death, and burial depth were the most significant variables, accounting for 65.47% of fragmentation variability. 28.84% of fragmentation variability remained unaccounted for.

4.3 Articulation

The three intrinsic independent variables, together, accounted for 17.17% of variability in articulation. Two – element type and age at death – were significantly correlated with articulation, while the third – element side – was not. Bone size and density are reflected by both element type and individual age at death, with larger and more dense bones generally being less susceptible to disturbance by natural taphonomic factors than smaller and less dense bones. Of element type, short bones exhibited a greater probability for disarticulation, while mandibles exhibited a greater probability for articulation. Long bones, flat bones, and irregular bones were not significantly correlated with articulation.

The results of age at death were less interpretable. Children, young adults, middle adults, old adults, and 'adults' all exhibited a greater likelihood for articulation, while infants and adolescents exhibited no significant correlation. However, none of those skeletal elements comprising the infant and adolescent categories were disarticulated, while at least one of those comprising each of the other age at death categories were (see Appendix B). Thus, it can be interpreted that all categories of age at death exhibited a significant negative correlation to articulation, or that regardless of age at death, all burials exhibited a greater chance for articulation than for disarticulation.

The eight extrinsic independent variables, together, accounted for 56.38% of the variability exhibited by articulation. Three – burial integrity, burial depth, and element charring – were significantly correlated with articulation, and five – presence of birch bark, burial type, body position, burial disturbance, and distance between the burial and underlying bedrock – were not. Of the extrinsic independent variables, burial integrity accounted for the most variability in articulation. Primary burials exhibited a greater potential for articulation while secondary burials exhibited a greater potential for disarticulation. This conclusion is obvious, as secondary burials were defined as such by their characteristic disarticulation as bundles or partial bundles. On the other hand, highly disarticulated burials that were not bundles were often of indiscernible integrity, and were thus not included in analysis for this variable (see Appendix B).

Burial depth accounted for the second most variability in articulation. Generally, deeper burials are less susceptible to disturbance by natural taphonomic factors than are more shallow burials. At Khuzhir-Nuge XIV, burials of increasing depth exhibited a greater likelihood for articulation.

Of those extrinsic independent variables significantly correlated with articulation, element charring accounted for the least articulation variability. Uncharred elements had a greater probability for articulation, while charred elements had a greater probability for disarticulation. It is likely that mortuary practices associated with the localized use of fire in the grave pit, or other unidentified taphonomic factors, in addition to the actual fire, resulted in the displacement of charred skeletal remains from their original articulated position.

Worthy of note is the fact that the independent variable burial disturbance was not significantly correlated with articulation, while it was with completeness (see above). Unfortunately, of the two disturbed burials, only one exhibited human remains, and these were sparse (eight elements were identifiable, and all eight were disarticulated). Articulation was only recorded for elements if they were present and identifiable, whereas the same was not true for completeness (see Appendix B). Thus, because only eight elements represented the category 'disturbed', even though they were all disarticulated, this number was not large enough to warrant a significant correlation. Regardless, it is reasonable to state that burial disturbance was a significant factor affecting articulation, with disturbed burials exhibiting a greater likelihood for disarticulation than undisturbed burials.

Taken together, the eleven (intrinsic and extrinsic) variables included in analyses accounted for 73.55% of the variability exhibited by articulation. Age at death and integrity were the most significant variables, together accounting for 46.38% of articulation variability. 26.45% of articulation variability remained unaccounted for.

4.4 Independent Variables

Burial depth was significantly correlated with all other independent variables except burial type. Charred skeletal elements exhibited greater burial depth than uncharred elements. Birch bark presence was associated with greater burial depth than birch bark absence. Extended and supine burials were significantly deeper than semi-flexed burials. Burials located between 0 and 5 cm above the underlying bedrock exhibited greater depth than those located between 5 and 10 cm above the underlying bedrock. Disturbed burials were significantly deeper than undisturbed burials. Secondary burials exhibited significantly greater burial depth than primary burials. Finally, infants exhibited the least burial depth, followed (consecutively) by adolescents and young adults (which were not significantly different from one another), children and old adults (which were not significantly different from one another), and middle adults and 'adults' (which were not significantly different from one another), which exhibited the greatest burial depth.

Among the independent variables included in the crosstabs analyses (element charring, presence of birch bark, body position, burial type, distance between the burial and underlying bedrock, burial disturbance, burial integrity, and age at death), most exhibited significant associations. Element charring was significantly correlated with all independent variables except body position and burial disturbance. Most charred skeletal elements were associated with the presence of birch bark, while most uncharred elements were associated with its absence. Most skeletal elements, charred or not, were associated with single burials, but charred elements were not associated with double burials and only rarely associated with triple burials. All charred skeletal elements and most uncharred

elements were associated with bedrock located between 0 and 5 cm below the burial. Most skeletal elements, charred or not, were associated with primary burials. Finally, most charred elements were associated with middle adult, old adult, and 'adult' individuals, while uncharred elements were associated with individuals of all ages. The association between element charring and burial depth has been summarized above.

The presence of birch bark was significantly correlated with all independent variables except body position. Birch bark presence was associated with single and triple burials, while its absence was associated with all burial types, most commonly single burials. Birch bark presence was only associated with burials located between 0 and 5 cm above the underlying bedrock, while birch bark absence was most commonly associated with burials located between 0 and 5 cm above the underlying bedrock. Birch bark presence was only correlated with undisturbed burials, while its absence was most commonly correlated with undisturbed burials. Both birch bark presence and absence were most commonly associated with primary burials. Finally, birch bark presence was associated with all age groups except children, while its absence was associated with all ages. The associations between the presence of birch bark and both element charring and burial depth have been summarized above.

Body position was only significantly correlated with burial depth, burial type, distance between the burial and underlying bedrock, and age at death. Extended and supine burials were most commonly single, while semi-flexed burials were only single. Both extended and supine and semi-flexed burials were most commonly located between 0 and 5 cm above the underlying bedrock. Finally, extended and supine burials were associated with all age groups (excluding infants because body position was not

discernable for infant burials; see Appendix B), while semi-flexed burials were only associated with young adults and 'adults.' The association between body position and burial depth has been summarized above.

Burial type was significantly correlated with all independent variables except burial depth and burial integrity. Single burials were most commonly located between 0 and 5 cm above the underlying bedrock, while double and triple burials were only located between 0 and 5 cm above the underlying bedrock. Single burials were most commonly undisturbed, while double and triple burials were only undisturbed. Finally, single burials were associated with all age groups except adolescents, double burials were associated with children, adolescents, and middle adults, only, and triple burials were associated with infants, children, adolescents, and middle adults, only. The associations between burial type and element charring, presence of birch bark, and body position have been summarized above.

The distance between the burial and underlying bedrock was significantly correlated with all other independent variables. Burials located between 0 and 5 cm above the underlying bedrock were most commonly undisturbed, while those located between 5 and 10 cm above the underlying bedrock were only undisturbed. Similarly, burials located between 0 and 5 cm above the underlying bedrock were most commonly primary, while those located between 5 and 10 cm above the underlying bedrock were only primary. Burials located between 0 and 5 cm above the underlying bedrock were associated with all age groups, while those located between 5 and 10 cm above the underlying bedrock were only associated with children and young adults. The associations between the distance between the burial and underlying bedrock and burial

depth, element charring, presence of birch bark, body position, and burial type have been summarized above.

Burial disturbance was significantly correlated with all independent variables except element charring and body position. Undisturbed burials were most commonly primary, while disturbed burials were only primary. Undisturbed burials were associated with all age groups, while disturbed burials were only associated with 'adults.' The associations between burial disturbance and burial depth, presence of birch bark, burial type, and the distance between the burial and the underlying bedrock have been summarized above.

Burial integrity was significantly correlated with all independent variables except body position and burial type. Primary burials were associated with all age groups, while secondary burials were only associated with middle adults and 'adults.' The associations between burial integrity and burial depth, element charring, presence of birch bark, distance between the burial and underlying bedrock, and burial disturbance have been summarized above. Finally, age at death was significantly correlated with all other independent variables, and these associations have been summarized above.

4.5 Summary of Results

Based on the above results and interpretations, some general conclusions can be drawn regarding the associations between the dependent variables (aspects of skeletal condition) and the independent variables (taphonomic factors) at Khuzhir-Nuge XIV. The intrinsic independent variables of age at death and element type, encompassing the intrinsic taphonomic factors of bone shape, bone size, and bone density, were both

significantly associated with completeness and fragmentation. Larger, more dense, and more regularly-shaped skeletal elements are generally less susceptible to degradation by extrinsic taphonomic factors (see Chapter Two, Section 2.2). At Khuzhir-Nuge XIV, they exhibited significantly increased completeness and decreased fragmentation, compared with smaller, less dense, and more irregularly-shaped bones.

Element type was also significantly correlated with articulation, as larger and more dense skeletal elements are usually less susceptible to disturbance and dispersal by extrinsic taphonomic factors than smaller and less dense elements (see Chapter Two, Section 2.2). Mandibles, representing the former (large and dense bones), exhibited a significantly greater likelihood for articulation, while short bones, representing the latter (smaller and less dense bones), exhibited a significantly greater likelihood for disarticulation.

Two extrinsic independent variables – element charring and burial depth – were significantly associated with all three aspects of skeletal condition. The use of fire (resulting in charring) causes fragmentation, friability, and warping of skeletal remains (see Chapter Two, Section 2.2). At Khuzhir-Nuge XIV, charred skeletal elements exhibited significantly decreased completeness, increased fragmentation, and greater probability for disarticulation than uncharred elements. Greater burial depth is generally associated with decreased susceptibility of skeletal material to other natural taphonomic factors (see Chapter Two, Section 2.2). At Khuzhir-Nuge XIV, skeletal elements from burials of increased depth exhibited significantly higher completeness, lower fragmentation, and a greater likelihood for articulation, than those of decreased burial depth.

Burial disturbance was significantly associated with both completeness and articulation. Disturbance increases susceptibility to degradation by both damaging and dispersing bones (see Chapter Two, Section 2.2). Skeletal elements from disturbed burials exhibited significantly lower completeness and a greater likelihood for disarticulation than elements from undisturbed burials.

The presence of birch bark (possible mortuary wrappings or coverings) was significantly associated with completeness, only. Mortuary wrappings usually act to impede the effects of natural taphonomic factors on skeletal material (see Chapter Two, Section 2.2). At Khuzhir-Nuge XIV, skeletal elements associated with birch bark exhibited significantly higher completeness than those not associated with birch bark. The presence of birch bark was also found to be significantly associated with increasing burial depth, and this factor may partially account not only for the high completeness of the associated skeletal material, but also the presence of the birch bark, itself.

Finally, burial integrity was significantly correlated with articulation. Because secondary interments are definable by the nature and extent of their disarticulated remains, it was to be expected that skeletal elements from secondary burials exhibited a significantly greater likelihood for disarticulation than those from primary burials.

4.6 Research Hypotheses

The objective of this research is the identification of the taphonomic factors affecting the variable condition of the skeletal remains at Khuzhir-Nuge XIV. To accomplish this objective, it is essential to satisfactorily address the four hypotheses which were presented in Chapter Two (Section 2.3).

1. Archaeological age is responsible for the variable skeletal condition at Khuzhir-Nuge XIV.

Table 4.1
Archaeological Age Versus Skeletal Condition

Burial	Calibrated Age [a]	Completeness	# of Fragments	Articulation [b]
7	6240-5540 BP	35%	763	28/28
9	4495-4325 BP	80%	1670	87/87
11	4465-4290 BP	98%	686	139/171
14	3974-3875 BP	55%	791	32/32
15	4495-4450 BP	70%	587	49/54
22	4470-4290 BP	15%	414	15/15
24	3625-3310 BP	30%	740	21/21

[a] 68.3% confidence interval, from Weber *et al.*, n.d.
[b] # of elements articulated/ # of elements present

Unfortunately, radiocarbon dates of archaeological age were available for only seven of the Khuzhir-Nuge XIV burials. Regardless, their effects on skeletal condition were not difficult to interpret. These dates are outlined in Table 4.1, along with the completeness, number of fragments, and articulation for each of the seven burials as a whole. The oldest burial (Burial 7), over a thousand years older than the next oldest burial, did not exhibit the worst condition, and the youngest burials (Burials 14 and 24), between five hundred and a thousand years younger than the next youngest burials, did not exhibit the best condition. In fact, the two burials exhibiting the best and worst conditions (Burials 11 and 22, respectively) both had median archaeological ages compared to the others. It is evident from this simple comparison of seven burials that the effects of archaeological age on skeletal condition at Khuzhir-Nuge XIV were

negligible. This, in turn, leads to the conclusion that other factors have overridden the effects of archaeological age on skeletal condition.

2. Intrinsic skeletal factors have an effect on the variable skeletal condition at Khuzhir-Nuge XIV.

Intrinsic skeletal factors, specifically element type and age at death, were found to be significant factors affecting skeletal condition. In fact, intrinsic factors represented 30.05% of variability in completeness, 42.64% of variability in fragmentation, and 17.17% of variability in articulation at Khuzhir-Nuge XIV. The results supported the general rule that larger, denser, and more regularly-shaped skeletal elements, whether between or within individuals, are less susceptible to degradation and disturbance than smaller, less dense, and more irregularly-shaped elements.

These intrinsic factors were not the only independent variables to be significantly associated with skeletal condition. Although significant, they could not solely, or even substantially, account for the variation in skeletal condition at Khuzhir-Nuge XIV. Variable skeletal condition remained evident even if both age at death and element type were the same. For example, of the seven middle adult right femora, completeness ranged from 0 to 100% (Burials 25 and 11, respectively), fragmentation ratios ranged from 0.94 to 100 (Burials 14 and 11, respectively), and one (Burial 36.1) was in a disarticulated position (see Appendix B). From this, it is evident that other (extrinsic) factors also significantly affected skeletal condition at Khuzhir-Nuge XIV.

3. Extrinsic natural factors have an effect on the variable skeletal condition at Khuzhir-Nuge XIV.

In all but a few exceptional circumstances, people ultimately determine the circumstances surrounding the postmortem interval of fellow human beings, up to and including the final disposal of the remains (Henderson, 1987; Nawrocki, 1995). This was most likely the case at the cemetery site of Khuzhir-Nuge XIV, where Glaskovo people were responsible for the events and situations surrounding the deceased both prior to and during interment. Therefore, with few exceptions, cultural practices control both the nature and extent of natural taphonomic processes acting on human remains. This is evident by comparing simple corpse exposure to the cultural practice of inhumation, for example. In the former case, a body (including its skeletal elements) can be mostly destroyed in only a few weeks (Bass, 1997). In the latter case, such as at Khuzhir-Nuge XIV, interment will preserve skeletal material for up to thousands of years because it inhibits access to the body by numerous taphonomic agents and processes (see Chapter Two, Section 2.2). Therefore, because extrinsic natural factors are predominantly controlled by extrinsic cultural factors, and because archaeological age and intrinsic skeletal factors could not and only partially account for the variable skeletal condition, respectively (see Hypotheses 1 and 2 above), it can be concluded that the variation in skeletal condition at Khuzhir-Nuge XIV was largely the result of variation in the Glaskovo cultural practices associated with the burials.

4. The variable skeletal condition at Khuzhir-Nuge XIV an be accounted for by the previously identified extrinsic cultural factors (Glaskovo mortuary protocol).

In the literature (see Chapter One, Section 1.4), there are five observed cultural factors which may account for the extent of Glaskovo mortuary variation: 1) body preparation (inhumation with or without cremation), 2) body position (extended versus semi-flexed versus squatting), 3) interment type (single versus multiple), 4) size and shape of paving stone arrangements, and 5) grave goods. Three of these five factors were included as independent variables in the above analyses: element charring (rather than 'cremation;' see Chapter Three, Section 3.4), body position, and burial type. The last two, size and shape of paving stone arrangements and grave goods, were deemed insignificant and were thus not utilized in the above analyses (see Chapter Three, Section 3.4). The three aspects of Glaskovo mortuary protocol included in the analyses accounted for only 2.16% of completeness variability, 4.23% of fragmentation variability, and 15.70% of articulation variability. Of these, only element charring exhibited a significant association with condition (completeness, fragmentation, and articulation). However, because charring was localized, affecting a relatively small area of each charred skeleton, its presence or absence could not have accounted for the degree of variability in overall skeletal condition evident at Khuzhir-Nuge XIV. Taking into account both intrinsic skeletal factors and the three aspects of Glaskovo mortuary variation, only 32.21% of variability in completeness, 46.87% of variability in fragmentation, and 32.87% of variability in articulation could be accounted for.

Five other observed cultural factors were also included as independent variables in the above analyses: burial depth, distance between the burial and the underlying bedrock, burial integrity, burial disturbance, and the presence of birch bark. Together, they accounted for 17.03% of completeness variability, 24.29% of fragmentation variability, and 40.68% of articulation variability. Burial depth exhibited a significant association with all three aspects of skeletal condition, burial disturbance exhibited a significant correlation with both completeness and articulation, burial integrity exhibited a significant association with articulation only, and the presence of birch bark (possible mortuary wrappings or coverings) exhibited a significant association with completeness, only (see above). The distance between the burial and underlying bedrock did not exhibit a significant association with any aspect of skeletal condition.

These results indicate that the existing description and understanding of Glaskovo mortuary protocol is not comprehensive enough to account for the variable condition of the Khuzhir-Nuge XIV skeletal remains, and must be investigated. Furthermore, they indicate that variation in extrinsic cultural factors other than those already identified in the Glaskovo literature can account for the variable skeletal condition exhibited at Khuzhir-Nuge XIV. However, all of these factors, in conjunction with intrinsic skeletal factors, are not all-inclusive in their effects on skeletal condition. In fact, 50.76% of variability in completeness, 28.84% of variability in fragmentation, and 26.45% of variability in articulation remain unaccounted for. Future research is needed to account for this still unexplained variability.

Chapter Five: Conclusions

5.1 Summary

Regardless of the numerous and variable taphonomic factors which can affect human remains (see Chapter Two, Section 2.2), the fact is that inconsistent skeletal condition among burials from a single localized cemetery is not common (for example, see Boddington, 1987) and requires explanation. Khuzhir-Nuge XIV was not the first Glaskovo cemetery observed to exhibit variable skeletal condition (for example, see Link, 1998), but it was the first to be studied systematically in this respect. Human taphonomy, with the purpose of explaining the cause and nature of the unusual variation in skeletal condition, was the focus of this research from its inception. Prior to excavation, a set of methods was developed in order to ensure scrupulous data collection and to facilitate subsequent analyses of taphonomic agents and their relationships to skeletal condition. The methodologies employed were largely unprecedented, as there are currently no accepted protocols for the collection or analysis of human taphonomic data (see Chapter Three, Section 3.2).

The purpose of analysis was to discern the relationships between three aspects of skeletal condition (completeness, fragmentation, and articulation) and eleven observed taphonomic factors (three intrinsic skeletal and eight extrinsic cultural). For each aspect of condition, both the significance of its association to each taphonomic factor, and the percentage of its variability which was accounted for by that factor, were determined. In addition, associations between the independent variables, themselves, were explored in order to contribute further insights into their variable effects on skeletal condition. The

results were then applied to the four hypotheses introduced in Chapter Two (see Chapter Four, Section 4.6), in order to provide a more comprehensive understanding of the relationships between taphonomic processes and skeletal condition, and to identify those which could account for the variable condition evident at Khuzhir-Nuge XIV.

Under ideal circumstances, any variation in the skeletal condition of burials subjected to identical extrinsic taphonomic environments would reflect variation in intrinsic skeletal factors and archaeological age, only. Thus, variable skeletal condition which could not be fully explained in terms of archaeological age and intrinsic skeletal factors, would reflect, at least in part, variation in extrinsic (natural and/or cultural) factors. These extrinsic factors, if natural, would be negotiated by cultural factors because, with few exceptions, people determine all aspects of the postmortem preparation and disposal of their deceased. Thus, regarding human remains, cultural (particularly mortuary) practices ultimately control the nature and extent of natural taphonomic processes.

Regarding skeletal condition at Khuzhir-Nuge XIV, archaeological age was not a significant factor, and intrinsic skeletal factors, although significant, could not account for all the variation observed. On the other hand, five extrinsic cultural taphonomic factors were found to be significantly associated with at least one aspect of skeletal condition, together accounting for 18.29% of completeness, 25.31% of fragmentation, and 41.55% of articulation. Only one of these, element charring, represented one of the five observed cultural factors comprising the extent of Glaskovo mortuary variation. Thus, this research indicated quite clearly that the current description and understanding of Glaskovo mortuary protocol is not comprehensive enough to fully, or even

substantially, account for the degree of variability in skeletal condition exhibited at Khuzhir-Nuge XIV. Furthermore, several cultural practices which previously received little or no attention were found to be responsible for a significant amount of the variable condition. These include burial depth, presence of birch bark, burial disturbance, and burial integrity (see Chapter Four, Section 4.5).

5.2 Directions for Future Research

Much variability in skeletal condition at Khuzhir-Nuge XIV remains unaccounted for. In fact, 50.76% of variability in completeness, 28.84% of variability in fragmentation, and 26.45% of variability in articulation have failed to be accounted for by the eleven taphonomic factors included in the previous analyses. It is most likely that the remaining variability in skeletal condition is attributable to extrinsic cultural factors which have yet to be identified. Future research should focus on the explanation of these cultural (particularly mortuary) practices, likely observable as variation in grave attributes. Their identification will not only increase understanding of the variable skeletal condition exhibited by Glaskovo burials, particularly at Khuzhir-Nuge XIV, but will also add further dimensions to the current conception of Glaskovo mortuary protocol.

It is likely that observations of the grave structures, themselves, will provide a number of additional cultural factors affecting the condition of skeletal remains. Recent research at Khuzhir-Nuge XIV has indicated that the previous understanding of Glaskovo grave architecture as stone-filled pits covered with elongated 'pavings' (Tolstoy, 1958; Weber, 1994, 1995) is somewhat erroneous (Ross, 1998). Rather, it appears as if the

'pavings' were actually the remnants of disintegrated cairns. These cairns, or grave markers, would have been raised above the bodies, which had been placed in pits or naturally occurring depressions (Ross, 1998). This discovery is significant, particularly when taking into account the various taphonomic factors affecting human remains in a completely subsurface interment (reflected by 'pavings') versus those affecting remains in a partial subsurface interment covered by a cairn. Thus, a number of architectural characteristics of cairns must be considered, including stone size, stone quantity, void size (both among stones and between the body and the cairn), and cairn stability.

Stone size and quantity would have been important factors affecting skeletal condition, both directly, following cairn disintegration, and indirectly, by influencing cairn construction. For example, after disintegration, numerous large stones would have subjected skeletal remains to more destructive pressures than fewer and smaller stones. Concerning cairn construction, on the other hand, stone size would have affected both void size and cairn stability; larger stones would have resulted in larger voids and a more stable cairn than smaller stones. Larger voids would have permitted better access to the body by numerous taphonomic agents, including fauna, flora, sediment deposition, humidity, and fluctuations in temperature (see Chapter Two, Section 2.2). In addition to stone size and quantity, cairn stability would have also been affected by pit depth. A deeper pit would have resulted in a more stable cairn, which would have been more resistant to disintegration, and would have been less likely to collapse suddenly. This would have negatively affected skeletal remains by allowing increased time for disturbance and destruction by the taphonomic factors mentioned above. However, it also would have positively affected the remains by allowing increased sediment

deposition to cushion skeletal remains from the (eventual) direct pressures of the stones, and by minimizing the chances of the remains being pulverized by sudden collapse. It is likely that differences in cairn construction would have been dictated by both natural factors, such as seasonality, and cultural factors, such as individual status. In addition, behavior of the living towards the graves and the deceased they represented may have been differentially influenced by variability in the cairn structures.

Regardless of the influences (natural and/or cultural) behind the differences in grave construction, it is evident that these differences would have significantly affected variation in skeletal condition. In fact, each burial would have been subjected to a unique configuration of both natural and cultural taphonomic factors, and would thus have to be investigated individually. Future research focusing on the elucidation of these, and any other cultural practices which may have variably affected skeletal condition, will be beneficial for two reasons. First, it will aid in the explanation of the unusual phenomenon of inconsistent skeletal condition exhibited by Glaskovo burials. And second, it will identify additional aspects of Glaskovo mortuary protocol which have yet to be accounted for. In both cases, it will contribute significantly to the ongoing multidisciplinary examination of the apparent discontinuous transition between the Kitoi and the Serovo-Glaskovo cultures (see Chapter One, Section 1.3).

5.3 Concluding Remarks

The study of human taphonomy at Khuzhir-Nuge XIV has indicated that the unusual inconsistent skeletal condition exhibited by Glaskovo burials is largely an artifact of variation in cultural (particularly mortuary) practices. Archaeological age and intrinsic skeletal factors were found to play insignificant and incomplete roles, respectively. Some

of the cultural practices responsible have been identified, but of these, only one was previously identified in the literature as a dimension of Glaskovo mortuary protocol (element charring reflecting fire use in the grave pit). Thus, not only has this research emphasized the significance of cultural practices as taphonomic factors affecting human skeletal condition, but it has also indicated that our current understanding of Glaskovo mortuary ritual is not comprehensive enough to account for the variable skeletal condition exhibited by Glaskovo burials. Future research focusing on the elucidation of these additional cultural factors has been recommended.

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Appendix A:
Data Collection Forms

BURIAL INFORMATION RECORDING FORM

Site _____ Observer _____
Feature/Burial _____ Date _____
Burial/Skeleton _____

Location

Locale _____ Horizontal Coordinates _____
Depth Below Surface _____ Depth Below Datum _____

Integrity

Primary Secondary Other _____
Undisturbed Disturbed Intrusive

Type

Single Multiple Discrete Commingled Other _____
Container/Wrapping? (comment) _____

Dimensions

Max. Length _____ Max. Width _____ Max. Depth _____

Skeletal Position

Extended Semi-Flexed Tightly Flexed Other _____
Supine Prone Other _____
Left Side Right Side Other _____

Compass Position

Orientation _____ Head To _____ Facing _____

Element Position

Cranial: Articulated position _____
Other (comment) _____

P-C Axial: Articulated position _____
Other (comment) _____

Appendicular: Articulated position _____
Other (comment) _____

Manual/Pedal: Articulated position _____
Other (comment) _____

Osteobiography (See Sex/Age Recording Form for details)

Age: _____
Sex: U F F? A M? M
Features/Artifacts _____

Samples Obtained _____

Comments _____

SKELETAL INVENTORY RECORDING FORM

Site _____ Observer _____
Feature/Burial _____ Date _____
Burial/Skeleton _____

Cranial Inventory (indicate # fragments & % complete if < 100%)

	L	R	U		
Parietal	____	____	____	Frontal	____
Temporal	____	____	____	Occipital	____
Maxilla	____	____	____	Ethmoid	____
Palatine	____	____	____	Vomer	____
Nasal	____	____	____	Sphenoid	____
Lacrimal	____	____	____	Hyoid	____
Zygomatic	____	____	____	Mandible	____
Inf. Conchae	____	____	____	Thyroid Cart.	____
Incus	____	____	____		
Malleus	____	____	____	# Unidentifiable Cranial	
Stapes	____	____	____	Fragments	____

Comments_____

Post-Cranial Axial Inventory (indicate # fragments & % complete if <100%)

Identifiable Ribs:

	L	R		L	R		L	R
1st	____	____	5th	____	____	9th	____	____
2nd	____	____	6th	____	____	10th	____	____
3rd	____	____	7th	____	____	11th	____	____
4th	____	____	8th	____	____	12th	____	____

Unidentifiable Ribs/Frags. (indicate # complete/total # fragments):	L	R	U
(indicate if attached):	__/__	__/__	__/__

Manubrium	____		
Sternal Body	____	Sacrum	____
Xyphoid	____	Coccyx	____

Identifiable Vertebrae (indicate if attached):

	Body	Arch		Body	Arch		Body	Arch
C1	____	____	T2	____	____	T10	____	____
C2	____	____	T3	____	____	T11	____	____
C3	____	____	T4	____	____	T12	____	____
C4	____	____	T5	____	____	L1	____	____
C5	____	____	T6	____	____	L2	____	____
C6	____	____	T7	____	____	L3	____	____
C7	____	____	T8	____	____	L4	____	____
T1	____	____	T9	____	____	L5	____	____

Unident. Vertebrae/Frags. (indicate # complete/total # fragments):	Body	Arch	Other
	__/__	__/__	__/__

Comments_____

Appendicular Inventory (indicate # fragments & % complete if < 100%)

	L	R	U		L	R	U
Humerus	____	____	____	Clavicle	____	____	____
Radius	____	____	____	Scapula	____	____	____
Ulna	____	____	____	Ilium	____	____	____
Femur	____	____	____	Ischium	____	____	____
Tibia	____	____	____	Pubis	____	____	____
Fibula	____	____	____	Patella	____	____	____
# Unident. Long Bone Frags.			____	# Other Unident. Frags.			____

Comments_____

Manual and Pedal Inventory (indicate # fragments & % complete if < 100%)

Identifiable Carpals/Metacarpals:	L	R	Identifiable Tarsals/Metatarsals:	L	R
Scaphoid	____	____	Calcaneus	____	____
Lunate	____	____	Talus	____	____
Triquetral	____	____	Navicular	____	____
Pisiform	____	____	Cuboid	____	____
Trapezium	____	____	Cuneiform 1	____	____
Trapezoid	____	____	Cuneiform 2	____	____
Capitate	____	____	Cuneiform 3	____	____
Hamate	____	____			
MC1	____	____	MT1	____	____
MC2	____	____	MT2	____	____
MC3	____	____	MT3	____	____
MC4	____	____	MT4	____	____
MC5	____	____	MT5	____	____

Unidentifiable (indicate # complete/total # fragments):

Carpals	__/__	Tarsals	__/__
Metacarpals	__/__	Metatarsals	__/__

Phalanges (indicate # complete/total # fragments):

Manual: proximal	__/__	Pedal: proximal	__/__
intermediate	__/__	intermediate	__/__
distal	__/__	distal	__/__

Unident. Man. Frags. ____ # Unident. Ped. Frags. ____ Other ____

Comments_____

DENTAL INVENTORY RECORDING FORM

Site _____ Observer _____
Feature/Burial _____ Date _____
Burial/Skeleton _____

Presence: 1 present in socket; 2 absent antemortem (evidence of resorption); 3 absent postmortem; 4 agenesis of tooth; 5 tooth present without observable socket; A completely formed; B root incomplete; C crown only formed
Eruption: 1 completely erupted; 2 partially erupted; 3 unerupted

Deciduous Dentition

Maxillary				Mandibular			
Tooth	Presence	Eruption		Tooth	Presence	Eruption	
51	_____	_____	(right)	71	_____	_____	(left)
52	_____	_____		72	_____	_____	
53	_____	_____		73	_____	_____	
54	_____	_____		74	_____	_____	
55	_____	_____		75	_____	_____	
61	_____	_____	(left)	81	_____	_____	(right)
61	_____	_____		82	_____	_____	
63	_____	_____		83	_____	_____	
64	_____	_____		84	_____	_____	
65	_____	_____		85	_____	_____	

Unidentifiable: Incisors _____ Canines _____ Molars _____
Unidentifiable Tooth Fragments _____
Comments _____

Permanent Dentition

Maxillary				Mandibular			
Tooth	Presence	Eruption		Tooth	Presence	Eruption	
11	_____	_____	(right)	31	_____	_____	(left)
12	_____	_____		32	_____	_____	
13	_____	_____		33	_____	_____	
14	_____	_____		34	_____	_____	
15	_____	_____		35	_____	_____	
16	_____	_____		36	_____	_____	
17	_____	_____		37	_____	_____	
18	_____	_____		38	_____	_____	
21	_____	_____	(left)	41	_____	_____	(right)
22	_____	_____		42	_____	_____	
23	_____	_____		43	_____	_____	
24	_____	_____		44	_____	_____	
25	_____	_____		45	_____	_____	
26	_____	_____		46	_____	_____	
27	_____	_____		47	_____	_____	
28	_____	_____		48	_____	_____	

Unident. Incisors _____ Canines _____ Premolars _____ Molars _____
Unidentifiable Tooth Fragments _____
Comments _____

ADULT SEX/AGE RECORDING FORM

Site _____ Observer _____
Feature/Burial _____ Date _____
Burial/Skeleton _____

SEX DETERMINATION

Non-Metric Analyses (See Appendix A1 for descriptions. Indicate 0 = unobservable; 1 = female; 2 = probable female; 3 = ambiguous; 4 = probable male; 5 = male.)

Pelvis	L	R	U
Acetabulum	___	___	___
Iliac Auricular Surface	___	___	___
Greater Sciatic Notch	___	___	___
Ischiopubic Ramus	___	___	___
Obturator Foramen	___	___	___
Pelvic Inlet	___	___	___
Postauricular Space	___	___	___
Preauricular Sulcus	___	___	___
Pubic Body	___	___	___
Sacral Alae			___
Sacrum			___
Subpubic Angle	___	___	___
Subpubic Concavity	___	___	___
Ventral Arc	___	___	___
Whole			___

Skull	L	R	U
Chin			___
Glabella/Tori			___
Mastoid Process	___	___	___
Mental Eminence			___
Nuchal Crest			___
Post. Zyg. Process	___	___	___
Supraorbital Margin	___	___	___
Vault/Bossing			___

Other

_____
_____
_____
_____
_____

Comments_____
_____
_____
_____
_____

Metric Analyses (See Appendix A2 for descriptions. Indicate measurement in mm and corresponding sex determination: 0 = unobservable; 1 = female; 2 = probable female; 3 = ambiguous; 4 = probable male; 5 = male. Sliding calipers and tape measure required.)

	L	R
Scapula		
Maximum Height	___/___	___/___
Height of Glen. Cavity	___/___	___/___
Femur		
Midshaft Circum.	___/___	___/___
Max. Diameter of Head	___/___	___/___
Vert. Diameter of Head	___/___	___/___
Bicondylar Breadth	___/___	___/___

	L	R
Humerus		
Vert. Diameter of Head	___/___	___/___
Tibia		
Proximal Breadth	___/___	___/___
Distal Breadth	___/___	___/___
Nutrient For. Circum.	___/___	___/___

Comments_____
_____
_____
_____
_____

AGE ESTIMATION

Pubic Symphysis (Sex must be determined *first*. See Appendices A3, A4, A5, and A6 for descriptions.)

		Phase	Range	Mean	Stand. Dev.
Todd	(left)	____	_____	____	____
	(right)	____	_____	____	____
Suchey-Brooks	(left)	____	_____	____	____
	(right)	____	_____	____	____

Comments_____

Iliac Auricular Surface (See Appendix A7 for descriptions.)

		Phase	Range
Meindl-Lovejoy	(left)	____	_____
	(right)	____	_____

Comments_____

Dental Attrition

Comments_____

Other

Comments_____

APPENDIX A1:
Description of Non-Metric Traits for Sex Determination

Pelvis

Acetabulum - females: smaller, more shallow, directed anterolaterally; males: larger, deeper, directed laterally (Bass, 1995: 215; Bennet, 1993: 16)

(Iliac) Auricular Surface - females: raised relative to the rest of the ilium; males: flat (Bass, 1995: 214-215)

Greater Sciatic Notch – females: broad, shallow; males: narrow, deep (Bass, 1995: 210; Bennet, 1993: 16; Buikstra and Ubelaker, 1994: 18)

Ischiopubic Ramus - females: the medial surface of the ischiopubic ramus, immediately below the symphysis, forms a narrow, crest-like ridge; males: the ramus is broad and flat (Bass, 1995: 209-210; Buikstra and Ubelaker, 1994: 17)

Obturator Foramen - females: smaller and more triangular; males: larger and oval shaped (Bass, 1995: 215; Bennet, 1993: 16)

Pelvic Inlet - females: spacious, circular or elliptical; males: more funneled, heart-shaped (Bass, 1995: 215; Bennet, 1993: 16)

Postauricular Space - females: present (immediately posterior to the iliac auricular surface; created by the raised iliac auricular surface); males: not present (Bass, 1995: 214)

Preauricular Sulcus - females: often found (depression between the greater sciatic notch and the iliac auricular surface); males: rarely found (not to be confused with the attachment for the piriformis muscle) (Bass, 1995: 210; Buikstra and Ubelaker, 1994: 18-19)

Pubic Body - females: long and rectangular; males: shorter and triangular (Bass, 1995: 212)

Sacral Alae - females: the width of the first sacral body is equal to the width of each ala; males: the width of the first sacral body is generally greater than the width of each ala (Bass, 1995: 113)

Sacrum - females: relatively flat; males: more curved (Bass, 1995: 113)

Subpubic Angle - females: large/wide; males: smaller/more narrow (Bass, 1995: 209; Bennet, 1993: 16)

Subpubic Concavity - females: when viewing the dorsal surface, the inferior border of the ischiopubic ramus, lateral to the symphyseal face, is concave; males: the inferior border of the ischiopubic ramus tends to be convex (Bass, 1995: 209; Buikstra and Ubelaker, 1994: 17)

Ventral Arc - females: present (slightly elevated ridge of bone across the ventral surface of the pubis; males: not present (Bass, 1995: 209; Buikstra and Ubelaker, 1994: 17)

Whole Pelvis - females: gracile, fewer muscle markings; males: robust, more muscle markings (Bass, 1995: 215; Bennet, 1993: 16)

Skull

Chin - females: rounded with a point on the midline; males: more square (Bass, 1995: 86)

Glabella/Tori - females: when viewing the cranium from the side, the profile of the glabella/supraorbital tori is less prominent; males: the profile of the glabella/supraoribital tori is more prominent (Bass, 1995: 86: Bennet, 1993: 15; Buikstra and Ubelaker, 1994: 20)

Mastoid Process - females: smaller; males: larger (Bass, 1995: 86: Bennet, 1993: 15; Buikstra and Ubelaker, 1994: 19)

Mental Eminence - females: smaller; males: larger (Buikstra and Ubelaker, 1994: 20)

Nuchal Crest - females: smoother, smaller; males: larger, more rugged (Bass, 1995: 86; Bennet, 1993: 15; Buikstra and Ubelaker, 1994: 19)

Posterior Zygomatic Process - females: the posterior ends of the zygomatic processes do not generally extend past the exterior auditory meati; males: the posterior ends of the zygomatic processes often extend as crests much past the external auditory meati (Bass, 1995: 86)

Supraorbital Margin - females: more sharp; males: more rounded/blunt (Bass, 1995: 86; Buikstra and Ubelaker, 1994: 19-20)

Vault/Bossing - females: smaller, smoother, more gracile, retention of frontal and parietal bossing (eminences); males: larger, more rugged, more robust, absence of frontal and parietal bossing (Bass, 1995: 86; Bennet, 1993: 16; Buikstra and Ubelaker, 1994: 19)

Other

Femur - females: angled neck, weak linea aspera; males: less angled neck, more prominent linea aspera

Foramen Magnum - females: smaller; males: larger (Bennet, 1993: 15)

Gonial Angle - females: more obtuse (more angled ascending ramus); males: less obtuse (more up-right ascending ramus), often with gonial aversion

Mandible - females: smaller with lower symphysis and narrower ascending ramus; males: larger with higher symphysis and broader ascending ramus (Bennet, 1993: 15)

Occipital Condyles - females: smaller; males: larger (Bennet, 1993: 15)

Olecranon Foramen (Septal Aperture) - females: relatively common (occurs almost 3.7 times more frequently than in males); males: less common (Bass, 1995: 156)

Orbits - females: rounded, higher, relatively larger; males: squared, lower, relatively smaller (Bennet, 1993: 15)

Palate - females: smaller, more parabolic in shape; males: larger, more U-shaped (Bennet, 1993: 15)

Parturition Scars - females: relatively common (pitting on the dorsal surface of the pubic body, generally associated with child birth trauma); males: much less common (can also be associated with other trauma to the pubic area)

Sternum - females: often, the sternal body is less than twice the length of the manubrium; males: often, the sternal body is more than twice the length of the manubrium (Bass, 1995: 117)

Teeth - females: smaller; males: larger (Bennet, 1993: 15)

Zygomatic bones - females: smaller, more compressed; males: larger, more laterally arched (Bennet, 1993: 15)

APPENDIX A2:
Description of Metric Traits for Sex Determination

Scapula

Maximum Height (anatomical breadth) - direct distance between the most superior point on the superior angle and the most inferior point on the inferior angle: F = < 129 mm; A = 140-159 mm; M = > 160 mm (Bass, 1995: 125-129; Buikstra and Ubelaker, 1994: 79)

Height of Glenoid Cavity - distance between the inferior point and the most elevated point on the blunt projection of the supraglenoid tubercle: F = < 34 mm; U = 34-36 mm; M = > 37 mm (Bass, 1995: 125-129)

Humerus

Vertical Diameter of Head - direct distance between the most superior and the most inferior points on the border of the articular surface (measured parallel to the long axis of the humeral shaft): F = < 43 mm; U = 44-46 mm; M= > 47 mm (Bass, 1995: 156-161; Buikstra and Ubelaker, 1994: 80)

Femur

Midshaft Circumference - femoral circumference at midshaft to the nearest mm; if the linea aspera exhibits a strong projection which is not evenly expressed across a large portion of the diaphysis, then this measurement is recorded approximately 10 cm above the midshaft: F = < 81 mm; M = > 81 mm (Bass, 1995: 231; Buikstra and Ubelaker, 1994: 83)

Maximum Diameter of Head - measurement taken from a point on the edge of the articular surface of the bone across to the opposite side; the bone is rotated until the *maximum* distance is obtained: F = < 42.5 mm; F? = 42.5-43.5 mm; A = 43.5-46.5 mm; M? = 46.5-47.5 mm; M = > 47.5 mm (Bass, 1995: 225-231; Buikstra and Ubelaker, 1994: 82)

Vertical Diameter of Head - diameter measured parallel to the long axis of the femoral shaft on the articular surface: F = < 41.5 mm; F? = 41.5-43.5 mm; A = 43.5-44.5 mm; M? = 44.5-45.5 mm; M = > 45.5 mm (Bass, 1995: 230; Montagu, 1960: 68-77)

Bicondylar Breadth - distance between the most medial point on the medial epicondyle and the most lateral point on the lateral epicondyle: F= < 72 mm; F? = 72-74 mm; A = 74-76 mm; M? = 76-78 mm; M = > 78 mm (Bass, 1995: 230; Montagu, 1960: 68-77)

Tibia

Proximal Breadth - measurement taken mediolaterally at the proximal end of the bone: F = < 74.56 mm (mean 69.97 mm); M = > 74.56 mm (mean 79.15 mm) (Bass, 1995: 247-250)

Distal Breadth - measurement taken mediolaterlly at the distal end of the bone: F = < 50.88 mm (mean = 47.58 mm); M = > 50.88 mm (mean = 54.18 mm) (Bass, 1995: 247-250)

Nutrient Foramen Circumference - circumference taken at the level of the nutrient foramen: F = < 91.21 mm (mean = 83.84 mm); M = > 91.21 mm (mean = 98.58 mm) (Bass, 1995: 247-250; Buikstra and Ubelaker, 1994: 83)

APPENDIX A3:
Todd's Age Changes in the Male Pubis
(from Todd, 1920)

First post-adolescent phase. Age 18-19. Symphyseal surface rugged, traversed by horizontal ridges separated by well marked grooves; no ossific (epiphyseal) nodules fusing with the surface; no definite delimiting margin; no definition of extremities.

Second post-adolescent phase. Age 20-21. Symphyseal surface still rugged, traversed by horizontal ridges, the grooves between which are, however, becoming filled near the dorsal limit with a new formation of finely textured bone. This formation begins to obscure the hinder extremities of the horizontal ridges. Ossific (epiphyseal) nodules fusing with the upper symphyseal face may occur; dorsal limiting margin begins to develop; no delimitation of extremities; foreshadowing of ventral bevel.

Third post-adolescent phase. Age 22-24. Symphyseal face shows progressive obliteration of ridge and furrow system; commencing formation of the dorsal plateau; presence of fusing ossific (epiphyseal) nodules; dorsal margin gradually becoming more defined; beveling as a result of ventral rarefaction becoming rapidly more pronounced; no delimitation of extremities.

Fourth phase. Age 25-26. Great increase of ventral beveled area; corresponding diminution of ridge and furrow formation; complete definition of dorsal margin through the formation of the dorsal plateau; commencing delimitation of lower extremity.

Fifth phase. Age 27-30. Little or no change in symphyseal face and dorsal plateau except that sporadic and premature attempts at the formation of a ventral rampart occur; lower extremity, like the dorsal margin, is increasing in clearness of definition; commencing formation of upper extremity with or without the intervention of a bony (epiphyseal) nodule.

Sixth phase. Age 30-35. Increasing definition of extremities; development and practical completion of ventral rampart; retention of granular appearance of symphyseal face and ventral aspect of pubis; absence of lipping of symphyseal margin.

Seventh phase. Age 35-39. Changes in symphyseal face and ventral aspect of pubis consequent upon diminishing activity; commencing bony outgrowth into attachments of tendons and ligaments, especially the gracilis tendon and sacro-tuberous ligament.

Eighth phase. Age 39-44. Symphyseal face generally smooth and inactive; ventral surface of pubis also inactive; oval outline complete or approximately complete; extremities clearly defined; no distinct "rim" to symphyseal face; no marked lipping of either ventral or dorsal margin.

Ninth phase. Age 45-50. Symphyseal face presents a more or less marked rim; dorsal margin uniformly lipped; ventral margin irregularly lipped.

Tenth phase. Age 50 and upward. Symphyseal face eroded and showing erratic ossification; ventral border more or less broken down; disfigurement increases with age.

APPENDIX A4:
Todd's Age Changes in the Female Pubis
(from Todd, 1921)

First post-adolescent phase. Age 16-? Symphyseal surface rugged, traversed by horizontal ridges separated by well marked grooves, there being no distinction in size between the upper and the lower ridges and the whole pattern being more delicate than in the male. No bony (epiphyseal) nodules fusing with the surface. No definite delimiting margin. No definition of extremities.

Second phase. Age ?-25. Symphyseal face still rugged. The horizontal grooves are becoming filled near their dorsal limit with new finely textured bone. Bony (epiphyseal) nodules fusing with the upper symphyseal face. Dorsal delimiting margin begins to develop. No delimitation of extremities. Ventral bevel commencing.

Third phase. Age 25-26? Symphyseal face shows progressive obliteration of the ridge and furrow system. Commencing formation of dorsal platform. Possible presence of bony nodules. Dorsal margin becoming more defined and sharply lipped. Ventral bevel more pronounced. Extremities not delimited.

Fourth phase. Age 26-27. Great increase of ventral beveled area. Corresponding diminution of ridge and furrow formation. Complete definition of dorsal margin through the formation of the dorsal platform. Commencing delimitation of lower extremity.

Fifth phase. Age 27-30. Relatively small change in symphyseal face and dorsal platform except for sporadic and premature attempts at the formation of a ventral rampart. Dorsal margin increasingly clearly defined and more sharply lipped. Lower extremity better defined. Upper extremity forming with or without the intervention of a bony (epiphyseal) nodule.

Sixth phase. Age 30-36. Increasing definition of extremities. Development and practical completion of ventral rampart. Retention to a small degree of granular appearance of symphyseal face indicating that activity has not yet quite ceased. Failure of ventral aspect of pubis adjacent to ventral rampart to become transformed into a compact surface. Because of this the rampart is more or less undermined. Retention of pectinate outline of dorsal margin and in slight degree of ridge and furrow system. No lipping of ventral margin and no increased lipping of dorsal margin.

Seventh phase. Age 36-40. Slight changes in symphyseal face and marked changes in ventral aspect consequent upon diminishing activity. No formation of symphyseal rim. No ossification of tendinous and ligamentous attachments. The lower age limit is approximate but the upper is more exactly defined by the material.

Eighth phase. Age 40-45. Symphyseal face and ventral aspect of pubic bone generally smooth and inactive. Oval outline complete. Extremities clearly defined. No distinct "rim" to symphyseal face. No lipping of ventral or increased lipping of dorsal margin. Development of ossification in tendinous and ligamentous attachments especially those of sacro-tuberous ligament and gracilis muscle.

Ninth phase. Age 45-50. Symphyseal face presents a more or less marked rim. No lipping of ventral and no further lipping of dorsal margin. No secondary erosion or rarefaction.

Tenth phase. Age 50 and upwards. Ventral margin eroded over a greater or less extent of its length, continuing somewhat into the symphyseal face. No increased lipping. Disfigurement only occasional and slight.

APPENDIX A5:
Suchey-Brooks' Age Changes in the Male Pubis
(from Suchey and Katz, 1986)

Phase I (mean 18.9; S.D. 2.3). Symphyseal face has a billowing surface (ridges and furrows) which extends to include the pubic tubercle. The horizontal ridges may be either well-marked or in the process of obliteration. Dorsal plateau may be in beginning phases of formation; ventral border is not yet forming. A key the recognition of this phase is the lack of delimitation of extremities (upper and lower). Ossific nodules may occur.

Phase II (mean 24.7; S.D. 4.3). Symphyseal face shows commencing delimitation of lower and/or upper extremities. Some bones still show ridge development. Dorsal margin is completed. Ventral border, upper and lower extremities, may be in process of delimitation through presence of developing ossific nodules.

Phase III (mean 28.8; S.D. 5.9). Symphyseal face shows lower extremity and ventral rampart in process of completion. There is a continuation of fusing ossific nodules forming the upper extremity and ventral border. Symphyseal face is smooth or can continue to show distinct ridges. Absence of lipping of symphyseal margin; no bony ligamentous outgrowths.

Phase IV (mean 36.8; S.D. 9.6). Symphyseal face is generally fined grained although remnants of the old ridge and furrow system may still remain. Usually the oval outline is complete at this stage, but occasionally a hiatus can occur in ventral rim. Pubic tubercle is fully separated from the symphyseal face by definition of upper extremity. The symphyseal face may have a distinct rim. Commencing bony outgrowths on inferior half of symphysis pubis may occur. However, there is no marked lipping of symphseal margin.

Phase V (mean 51.0; S.D. 13.6). Symphyseal face is completely rimmed with some slight depression of the face itself, relative to the rim. More pronounced "rimming" occurs on the dorsal margin, with moderate lipping on the ventral margin.

Phase VI (mean 62.7; S.D. 12.4). Symphyseal face shows ongoing depression as rim erodes. Ventral ligamentous attachments are marked. In many individuals the pubic tubercle appears as a separate bony knob. The face may be pitted or porous, giving an appearance of disfigurement with the ongoing process of erratic ossification.

APPENDIX A6:
Suchey-Brooks' Age Changes in the Female Pubis
(from Suchey *et al.*, 1988)

Phase I (mean 19.4; S.D. 2.6). Symphyseal face has a billowing surface (ridges and furrows) which usually extends to include the pubic tubercle. The horizontal ridges are either well-marked or in the process of obliteration. Dorsal margin may be in beginning phases of formation; ventral beveling may be commencing. Although ossific nodules may occur on the upper extremity, a key to the recognition of this phase is the lack of delimitation of either extremity (upper or lower).

Phase II (mean 25.0; S.D. 4.9). The symphyseal face may still show ridge development. The face has commencing delimitation of lower and/or upper extremities occurring with or without ossific nodules. The ventral rampart may be in beginning phases as an extension of the bony activity at either or both extremities.

Phase III (mean 30.7; S.D. 8.1). Symphyseal face shows lower extremity and ventral rampart in process of completion. There can be a continuation of fusing ossific nodules forming the upper extremity and along the ventral border. Symphyseal face is smooth or can continue to show distinct ridges. Dorsal plateau is complete. Absence of lipping of symphseal dorsal margin; no bony ligamentous outgrowths.

Phase IV (mean 38.2; S.D. 10.9). Symphyseal face is generally fine grained although remnants of the old ridge and furrow system may still remain. Usually the oval outline is complete at this stage, but a hiatus can occur in the ventral rim. Pubic tubercle is fully separated from the symphyseal face by definition of the upper extremity. The symphyseal face may have a distinct rim. Ventrally, bony ligamentous outgrowths may occur on inferior portion of pubic bone adjacent to symphyseal face. If any lipping occurs it will be slight and located on the dorsal border.

Phase V (mean 48.1; S.D. 14.6). Symphyseal face is completely rimmed with some slight depression of the face itself, relative to the rim. Moderate lipping is usually found on the dorsal border with more prominent ligamentous outgrowths on the ventral border. There is little or no rim erosion. Breakdown may occur on the superior ventral border.

Phase VI (mean 60.0; S.D. 12.4). Symphyseal face may show ongoing depression as rim erodes. Ventral ligamentous attachments are marked. In many individuals the pubic tubercle is a separate bony knob. The face may be pitted or porous, giving an appearance of disfigurement with the ongoing process of erratic ossification. Crenulations may occur. The shape of the face is often irregular at this stage.

APPENDIX A7:
Meindl and Lovejoy's Age Changes in the Iliac Auricular Surface
(from Buikstra and Ubelaker, 1994: 25)

Apex - portion of the iliac auricular surface that articulates with the posterior aspect of the arcuate line
Superior Demiface - portion of the iliac auricular area above the apex
Inferior Demiface - portion of the iliac auricular area below the apex
Retroauricular Area - region between the iliac auricular surface and posterior inferior iliac spine
Billowing - transverse ridging
Granularity - appearance of the articular surface; a heavily "grained" appearance, for example, resembles fine sand paper
Density - compactness; subchondral bone that appears smooth and not granular
Porosity - perforations ranging from barely visible to 10 mm in diameter

Phase 1. Age 20-24. Transverse billowing and very fine granularity. Articular surface displays fine granular texture and marked transverse organization. There is no porosity, retroauricular or apical activity. The surface appears youthful because of broad and well-organized billows, which impart the definitive transverse organization. Raised transverse billows are well-defined and cover most of the surface. Any subchondral defects are smooth-edged and rounded.

Phase 2. Age 25-29. Reduction of billowing but retention of youthful appearance. Changes from the previous phase are not marked and are mostly reflected in slight to moderate loss of billowing, with replacement by striae. There is no apical activity, porosity, or retroauricular activity. The surface still appears youthful owing to marked transverse organization. Granulation is slightly more coarse.

Phase 3. Age 30-34. General loss of billowing, replacement by striae, and distinct coarsening of granularity. Both demifaces are largely quiescent with some loss of transverse organization. Billowing is much reduced and replaced by striae. The surface is more coarsely and recognizably granular than in the previous phase, with no significant changes at the apex. Small areas of microporosity may appear. Slight retroauricular activity may occasionally be present. In general, coarse granulation supersedes and replaces billowing. Note smoothing of surface by replacement of billows with fine striae, but distinct retention of slight billowing. Loss of transverse organization and coarsening of granularity is evident.

Phase 4. Age 35-39. Uniform, coarse granularity. Both faces are coarsely and uniformly granulated, with marked reduction of both billowing and striae, but striae may still be present. Transverse organization is present but poorly defined. There is some activity in the retroauricular area, but this is usually slight. Minimal changes are seen at the apex, microporosity is slight, and there is no macroporosity.

Phase 5. Age 40-44. Transition from coarse granularity to dense surface. No billowing is seen. Striae may be present, but are very vague. The face is still partially (coarsely) granular and there is a marked loss of transverse organization. Partial densification of the surface with commensurate loss of granularity. Slight to moderate activity in the retroauricular area. Occasional macroporosity is seen, but this is not typical. Slight changes are usually present at the apex. Some increase in macroporosity, depending on the degree of densification.

Phase 6. Age 45-49. Completion of densification with complete loss of granularity. Significant loss of granulation is seen in most specimens, with replacement by dense bone. No billows or striae are present. Changes at apex are slight to moderate but are almost always present. There is a distinct tendency for the surface to become dense. No transverse organization is evident. Most or all of the microporosity is lost to densification. There is increased irregularity of margins with moderate retroauricular activity and little or no macroporosity.

Phase 7. Age 50-59. Dense irregular surface of rugged topography and moderate to marked activity in periauricular areas. This is a further elaboration of the previous morphology, in which marked surface irregularity becomes the paramount feature. Topography, however, shows no transverse or other form of organization. Moderate granulation is only occasionally retained. The inferior demiface generally is lipped at the inferior terminus. Apical changes are almost invariable and may be marked. Increasing irregularity of margins is seen. Macroporosity is present in some cases. Retroauricular activity is moderate to marked in most cases.

Phase 8. Age 60+. Breakdown with marginal lipping, macroporosity, increased irregularity, and marked activity in periauricular areas. The paramount feature is a nongranular, irregular surface, with distinct signs of subchondral destruction. No transverse organization is seen and there is a distinct absence of any youthful criteria. Macroporosity is present in about one third of all cases. Apical activity is usually marked but it is not requisite. Margins become dramatically irregular and lipped, with typical degenerative joint change. Retroauricular area becomes well defined with profuse osteophytes of low to moderate relief. There is clear destruction of subchondral bone, absence of transverse organization, and increased irregularity.

Appendix B: Burial Database

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
7	Pariet	3	1	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Pariet	3	2	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Tempor	3	1	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Tempor	3	2	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Maxilla	4	1	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Maxilla	4	2	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Palat	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Palat	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Nasal	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Nasal	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Lacrim	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Lacrim	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Zygomat	4	1	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Zygomat	4	2	75	2.78	1	4	34	2	2	1	1	2	1	1
7	I Conch	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	I Conch	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Frontal	3	•	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Occipit	3	•	75	2.78	1	4	34	2	2	1	1	2	1	1
7	Ethmoid	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	Vomer	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	Sphen	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	Hyoid	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	Mand	5	•	95	11.88	1	4	34	2	2	1	1	2	1	1
7	Ribs	3	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Ribs	3	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Sternum	3	•	0	•	•	4	34	•	2	1	1	2	1	1
7	C Vert	4	•	7.86	13.75	1	4	34	2	2	1	1	2	1	1
7	T Vert	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	L Vert	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	Sacrum	3	•	5	0.42	1	4	34	2	2	1	1	2	1	1
7	Coccyx	4	•	0	•	•	4	34	•	2	1	1	2	1	1
7	Clavic	1	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Clavic	1	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Scapula	3	1	5	5	1	4	34	2	2	1	1	2	1	1
7	Scapula	3	2	15	1.25	1	4	34	2	2	1	1	2	1	1
7	Humerus	1	1	15	0.2	1	4	34	2	2	1	1	2	1	1
7	Humerus	1	2	70	1.75	1	4	34	2	2	1	1	2	1	1
7	Radius	1	1	2.5	0.13	1	4	34	2	2	1	1	2	1	1
7	Radius	1	2	2.5	0.17	1	4	34	2	2	1	1	2	1	1
7	Ulna	1	1	2.5	0.13	1	4	34	2	2	1	1	2	1	1
7	Ulna	1	2	2.5	0.17	1	4	34	2	2	1	1	2	1	1
7	Carpals	4	1	0	•	•	4	34	2	2	1	1	2	1	1
7	Carpals	4	2	0	•	•	4	34	2	2	1	1	2	1	1
7	MC	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	MC	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	MP Phal	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	MP Phal	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	MI Phal	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	MI Phal	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	MD Phal	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	MD Phal	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Ilium	3	1	5	1	1	4	34	2	2	1	1	2	1	1
7	Ilium	3	2	5	5	1	4	34	2	2	1	1	2	1	1
7	Ischium	3	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Ischium	3	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Pubis	3	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Pubis	3	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Femur	1	1	20	0.29	1	4	34	2	2	1	1	2	1	1
7	Femur	1	2	30	0.86	1	4	34	2	2	1	1	2	1	1
7	Tibia	1	1	15	0.3	1	4	34	2	2	1	1	2	1	1
7	Tibia	1	2	5	0.1	1	4	34	2	2	1	1	2	1	1
7	Fibula	1	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Fibula	1	2	0	•	•	4	34	•	2	1	1	2	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
7	Patella	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Patella	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Calcan	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Calcan	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Talus	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Talus	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	Tarsals	4	1	0	•	•	4	34	•	2	1	1	2	1	1
7	Tarsals	4	2	0	•	•	4	34	•	2	1	1	2	1	1
7	MT	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	MT	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	PP Phal	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	PP Phal	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	PI Phal	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	PI Phal	2	2	0	•	•	4	34	•	2	1	1	2	1	1
7	PD Phal	2	1	0	•	•	4	34	•	2	1	1	2	1	1
7	PD Phal	2	2	0	•	•	4	34	•	2	1	1	2	1	1
9	Pariet	3	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Pariet	3	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Tempor	3	•	40	4.44	1	6	48	1	1	1	1	1	1	1
9	Tempor	3	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Maxilla	4	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Maxilla	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Palat	4	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Palat	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Nasal	4	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Nasal	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Lacrim	4	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Lacrim	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Zygomat	4	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Zygomat	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	I Conch	4	1	0	•	•	6	48	•	1	1	1	1	1	1
9	I Conch	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Frontal	3	•	5	1	1	6	48	1	1	1	1	1	1	1
9	Occipit	3	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Ethmoid	4	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Vomer	4	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Sphen	4	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Hyoid	4	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Mand	5	•	60	3.75	1	6	48	1	1	1	1	1	1	1
9	Ribs	3	1	0	•	•	6	48	•	1	1	1	1	1	1
9	Ribs	3	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Sternum	3	•	0	•	•	6	48	•	1	1	1	1	1	1
9	C Vert	4	•	17.14	24	1	6	48	1	1	1	1	1	1	1
9	T Vert	4	•	0	•	•	6	48	•	1	1	1	1	1	1
9	L Vert	4	•	0	•	•	6	48	•	1	1	1	1	1	1
9	Sacrum	3	•	40	1.33	1	6	48	2	1	1	1	1	1	1
9	Coccyx	4	•	0	•	•	6	48	2	1	1	1	1	1	1
9	Clavic	1	1	25	1.79	1	6	48	2	1	1	1	1	1	1
9	Clavic	1	2	10	10	1	6	48	1	1	1	1	1	1	1
9	Scapula	3	1	40	1.33	1	6	48	2	1	1	1	1	1	1
9	Scapula	3	2	15	0.38	1	6	48	1	1	1	1	1	1	1
9	Humerus	1	1	95	2.71	1	6	48	2	1	1	1	1	1	1
9	Humerus	1	2	70	2.33	1	6	48	1	1	1	1	1	1	1
9	Radius	1	1	90	6.92	1	6	48	2	1	1	1	1	1	1
9	Radius	1	2	40	2.67	1	6	48	1	1	1	1	1	1	1
9	Ulna	1	1	95	47.5	1	6	48	2	1	1	1	1	1	1
9	Ulna	1	2	55	6.88	1	6	48	1	1	1	1	1	1	1
9	Carpals	4	1	70	93.33	1	6	48	2	1	1	1	1	1	1
9	Carpals	4	2	73.75	98.33	1	6	48	2	1	1	1	1	1	1
9	MC	2	1	78	65	1	6	48	2	1	1	1	1	1	1
9	MC	2	2	86	53.75	1	6	48	2	1	1	1	1	1	1
9	MP Phal	2	1	80	100	1	6	48	2	1	1	1	1	1	1
9	MP Phal	2	2	100	83.33	1	6	48	2	1	1	1	1	1	1
9	MI Phal	2	1	100	100	1	6	48	2	1	1	1	1	1	1
9	MI Phal	2	2	100	100	1	6	48	2	1	1	1	1	1	1
9	MD Phal	2	1	80	100	1	6	48	2	1	1	1	1	1	1
9	MD Phal	2	2	100	100	1	6	48	2	1	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
9	Ilium	3	1	75	4.09	1	6	48	2	1	1	1	1	1	1
9	Ilium	3	2	80	3.69	1	6	48	1	1	1	1	1	1	1
9	Ischium	3	1	75	4.09	1	6	48	2	1	1	1	1	1	1
9	Ischium	3	2	80	3.69	1	6	48	1	1	1	1	1	1	1
9	Pubis	3	1	75	4.09	1	6	48	2	1	1	1	1	1	1
9	Pubis	3	2	80	3.69	1	6	48	1	1	1	1	1	1	1
9	Femur	1	1	95	1.9	1	6	48	2	1	1	1	1	1	1
9	Femur	1	2	95	4.75	1	6	48	2	1	1	1	1	1	1
9	Tibia	1	1	95	9.5	1	6	48	2	1	1	1	1	1	1
9	Tibia	1	2	90	•	1	6	48	2	1	1	1	1	1	1
9	Fibula	1	1	95	11.88	1	6	48	2	1	1	1	1	1	1
9	Fibula	1	2	95	9.5	1	6	48	2	1	1	1	1	1	1
9	Patella	4	1	98	98	1	6	48	2	1	1	1	1	1	1
9	Patella	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Calcan	4	1	35	17.5	1	6	48	2	1	1	1	1	1	1
9	Calcan	4	2	0	•	•	6	48	•	1	1	1	1	1	1
9	Talus	4	1	98	98	1	6	48	2	1	1	1	1	1	1
9	Talus	4	2	35	35	1	6	48	2	1	1	1	1	1	1
9	Tarsals	4	1	39	97.5	1	6	48	2	1	1	1	1	1	1
9	Tarsals	4	2	0	•	•	6	48	2	1	1	1	1	1	1
9	MT	2	1	81	40.5	1	6	48	2	1	1	1	1	1	1
9	MT	2	2	0	•	•	6	48	•	1	1	1	1	1	1
9	PP Phal	2	1	0	•	•	6	48	•	1	1	1	1	1	1
9	PP Phal	2	2	0	•	•	6	48	•	1	1	1	1	1	1
9	PI Phal	2	1	0	•	•	6	48	•	1	1	1	1	1	1
9	PI Phal	2	2	0	•	•	6	48	•	1	1	1	1	1	1
9	PD Phal	2	1	0	•	•	6	48	•	1	1	1	1	1	1
9	PD Phal	2	2	0	•	•	6	48	•	1	1	1	1	1	1
10	Pariet	3	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Pariet	3	2	60	15	1	4	44	2	2	1	1	1	1	1
10	Tempor	3	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Tempor	3	2	70	11.67	1	4	44	2	2	1	1	1	1	1
10	Maxilla	4	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Maxilla	4	2	35	17.5	1	4	44	2	2	1	1	1	1	1
10	Palat	4	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Palat	4	2	0	•	•	4	44	•	2	1	1	1	1	1
10	Nasal	4	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Nasal	4	2	0	•	•	4	44	•	2	1	1	1	1	1
10	Lacrim	4	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Lacrim	4	2	0	•	•	4	44	•	2	1	1	1	1	1
10	Zygomat	4	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Zygomat	4	2	0	•	•	4	44	•	2	1	1	1	1	1
10	I Conch	4	1	0	•	•	4	44	•	2	1	1	1	1	1
10	I Conch	4	2	0	•	•	4	44	•	2	1	1	1	1	1
10	Frontal	3	•	30	15	1	4	44	2	2	1	1	1	1	1
10	Occipit	3	•	55	9.17	1	4	44	2	2	1	1	1	1	1
10	Ethmoid	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Vomer	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Sphen	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Hyoid	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Mand	5	•	80	26.67	1	4	44	2	2	1	1	1	1	1
10	Ribs	3	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Ribs	3	2	0	•	•	4	44	•	2	1	1	1	1	1
10	Sternum	3	•	0	•	•	4	44	•	2	1	1	1	1	1
10	C Vert	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	T Vert	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	L Vert	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Sacrum	3	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Coccyx	4	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Clavic	1	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Clavic	1	2	0	•	•	4	44	•	2	1	1	1	1	1
10	Scapula	3	1	2	2	1	4	44	2	2	1	1	1	1	1
10	Scapula	3	2	5	5	1	4	44	2	2	1	1	1	1	1
10	Humerus	1	•	60	6	1	4	44	2	2	1	1	1	1	1
10	Humerus	1	•	0	•	•	4	44	•	2	1	1	1	1	1
10	Radius	1	1	0	•	•	4	44	•	2	1	1	1	1	1
10	Radius	1	2	0	•	•	4	44	•	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
10	Ulna	1	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Ulna	1	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Carpals	4	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Carpals	4	2	0	*	*	4	44	*	2	1	1	1	1	1
10	MC	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	MC	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	MP Phal	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	MP Phal	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	MI Phal	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	MI Phal	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	MD Phal	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	MD Phal	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Ilium	3	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Ilium	3	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Ischium	3	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Ischium	3	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Pubis	3	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Pubis	3	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Femur	1	1	40	1	1	4	44	2	2	1	1	1	1	1
10	Femur	1	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Tibia	1	1	35	1.17	1	4	44	2	2	1	1	1	1	1
10	Tibia	1	2	20	0.67	1	4	44	2	2	1	1	1	1	1
10	Fibula	1	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Fibula	1	2	25	1.25	1	4	44	2	2	1	1	1	1	1
10	Patella	4	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Patella	4	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Calcan	4	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Calcan	4	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Talus	4	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Talus	4	2	0	*	*	4	44	*	2	1	1	1	1	1
10	Tarsals	4	1	0	*	*	4	44	*	2	1	1	1	1	1
10	Tarsals	4	2	0	*	*	4	44	*	2	1	1	1	1	1
10	MT	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	MT	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	PP Phal	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	PP Phal	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	PI Phal	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	PI Phal	2	2	0	*	*	4	44	*	2	1	1	1	1	1
10	PD Phal	2	1	0	*	*	4	44	*	2	1	1	1	1	1
10	PD Phal	2	2	0	*	*	4	44	*	2	1	1	1	1	1
11	Pariet	3	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Pariet	3	2	95	95	1	5	54	2	2	1	1	1	1	1
11	Tempor	3	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Tempor	3	2	95	95	1	5	54	2	2	1	1	1	1	1
11	Maxilla	4	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Maxilla	4	2	95	95	1	5	54	2	2	1	1	1	1	1
11	Palat	4	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Palat	4	2	95	95	1	5	54	2	2	1	1	1	1	1
11	Nasal	4	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Nasal	4	2	95	95	1	5	54	2	2	1	1	1	1	1
11	Lacrim	4	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Lacrim	4	2	95	95	1	5	54	2	2	1	1	1	1	1
11	Zygomat	4	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Zygomat	4	2	95	95	1	5	54	2	2	1	1	1	1	1
11	I Conch	4	1	0	*	*	5	54	*	2	1	1	1	1	1
11	I Conch	4	2	0	*	*	5	54	*	2	1	1	1	1	1
11	Frontal	3	*	95	95	1	5	54	2	2	1	1	1	1	1
11	Occipit	3	*	95	95	1	5	54	2	2	1	1	1	1	1
11	Ethmoid	4	*	0	*	*	5	54	*	2	1	1	1	1	1
11	Vomer	4	*	95	95	1	5	54	2	2	1	1	1	1	1
11	Sphen	4	*	95	95	1	5	54	2	2	1	1	1	1	1
11	Hyoid	4	*	45	45	1	5	54	2	2	1	1	1	1	1
11	Mand	5	*	100	100	1	5	54	2	2	1	1	1	1	1
11	Ribs	3	1	98.75	45.58	1	5	54	2	2	1	1	1	1	1
11	Ribs	3	2	79.58	15.16	1	5	54	2	2	1	1	1	1	1
11	Sternum	3	*	0	*	*	5	54	*	2	1	1	1	1	1
11	C Vert	4	*	99.64	87.19	1	5	54	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
11	T Vert	4	*	95	45.6	1	5	54	2	2	1	1	1	1	1
11	L Vert	4	*	96	53.33	1	5	54	2	2	1	1	1	1	1
11	Sacrum	3	*	95	31.67	1	5	54	2	2	1	1	1	1	1
11	Coccyx	4	*	100	50	1	5	54	2	2	1	1	1	1	1
11	Clavic	1	1	0	*	*	5	54	*	2	1	1	1	1	1
11	Clavic	1	2	100	100	1	5	54	2	2	1	1	1	1	1
11	Scapula	3	1	85	4.72	1	5	54	2	2	1	1	1	1	1
11	Scapula	3	2	95	15.83	1	5	54	2	2	1	1	1	1	1
11	Humerus	1	1	100	6.67	1	5	54	2	2	1	1	1	1	1
11	Humerus	1	2	100	100	1	5	54	2	2	1	1	1	1	1
11	Radius	1	1	100	25	1	5	54	2	2	1	1	1	1	1
11	Radius	1	2	100	50	1	5	54	2	2	1	1	1	1	1
11	Ulna	1	1	100	50	1	5	54	2	2	1	1	1	1	1
11	Ulna	1	2	100	33.33	1	5	54	2	2	1	1	1	1	1
11	Carpals	4	1	86.88	99.29	2	5	54	2	2	1	1	1	1	1
11	Carpals	4	2	98.75	98.75	1	5	54	2	2	1	1	1	1	1
11	MC	2	1	100	100	2	5	54	2	2	1	1	1	1	1
11	MC	2	2	99	99	2	5	54	2	2	1	1	1	1	1
11	MP Phal	2	1	90	75	1	5	54	2	2	1	1	1	1	1
11	MP Phal	2	2	90	75	1	5	54	2	2	1	1	1	1	1
11	MI Phal	2	1	100	100	1	5	54	2	2	1	1	1	1	1
11	MI Phal	2	2	100	100	1	5	54	2	2	1	1	1	1	1
11	MD Phal	2	1	100	100	1	5	54	2	2	1	1	1	1	1
11	MD Phal	2	2	100	100	1	5	54	2	2	1	1	1	1	1
11	Ilium	3	1	90	90	1	5	54	2	2	1	1	1	1	1
11	Ilium	3	2	95	47.5	1	5	54	2	2	1	1	1	1	1
11	Ischium	3	1	100	100	1	5	54	2	2	1	1	1	1	1
11	Ischium	3	2	90	90	1	5	54	2	2	1	1	1	1	1
11	Pubis	3	1	90	6.43	1	5	54	2	2	1	1	1	1	1
11	Pubis	3	2	70	23.33	1	5	54	2	2	1	1	1	1	1
11	Femur	1	1	99	24.75	1	5	54	2	2	1	1	1	1	1
11	Femur	1	2	100	100	1	5	54	2	2	1	1	1	1	1
11	Tibia	1	1	99	9.9	1	5	54	2	2	1	1	1	1	1
11	Tibia	1	2	100	100	1	5	54	2	2	1	1	1	1	1
11	Fibula	1	1	99	19.8	1	5	54	2	2	1	1	1	1	1
11	Fibula	1	2	99	99	1	5	54	2	2	1	1	1	1	1
11	Patella	4	1	95	95	1	5	54	2	2	1	1	1	1	1
11	Patella	4	2	100	100	1	5	54	2	2	1	1	1	1	1
11	Calcan	4	1	100	100	1	5	54	2	2	1	1	1	1	1
11	Calcan	4	2	99	99	1	5	54	2	2	1	1	1	1	1
11	Talus	4	1	100	100	2	5	54	2	2	1	1	1	1	1
11	Talus	4	2	100	100	2	5	54	2	2	1	1	1	1	1
11	Tarsals	4	1	100	100	2	5	54	2	2	1	1	1	1	1
11	Tarsals	4	2	100	100	2	5	54	2	2	1	1	1	1	1
11	MT	2	1	77.6	97	2	5	54	2	2	1	1	1	1	1
11	MT	2	2	77	96.25	2	5	54	2	2	1	1	1	1	1
11	PP Phal	2	*	30	75	2	5	54	2	2	1	1	1	1	1
11	PI Phal	2	1	0	*	*	5	54	*	2	1	1	1	1	1
11	PI Phal	2	2	0	*	*	5	54	*	2	1	1	1	1	1
11	PD Phal	2	*	10	100	2	5	54	2	2	1	1	1	1	1
12	Pariet	3	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Pariet	3	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Tempor	3	1	35	5.83	1	4	34	2	2	2	1	2	1	1
12	Tempor	3	2	40	1.67	1	4	34	2	2	2	1	2	1	1
12	Maxilla	4	1	80	8.89	1	4	34	2	2	2	1	2	1	1
12	Maxilla	4	2	85	85	1	4	34	2	2	2	1	2	1	1
12	Palat	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Palat	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Nasal	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Nasal	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Lacrim	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Lacrim	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Zygomat	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Zygomat	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	I Conch	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	I Conch	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Frontal	3	*	0	*	*	4	34	*	2	2	1	2	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
12	Occipit	3	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Ethmoid	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Vomer	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Sphen	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Hyoid	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Mand	5	*	85	3.4	1	4	34	2	2	2	1	2	1	1
12	Ribs	3	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Ribs	3	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Sternum	3	*	0	*	*	4	34	*	2	2	1	2	1	1
12	C Vert	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	T Vert	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	L Vert	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Sacrum	3	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Coccyx	4	*	0	*	*	4	34	*	2	2	1	2	1	1
12	Clavic	1	1	30	4.29	1	4	34	2	2	2	1	2	1	1
12	Clavic	1	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Scapula	3	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Scapula	3	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Humerus	1	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Humerus	1	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Radius	1	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Radius	1	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Ulna	1	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Ulna	1	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Carpals	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Carpals	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	MC	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	MC	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	MP Phal	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	MP Phal	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	MI Phal	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	MI Phal	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	MD Phal	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	MD Phal	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Ilium	3	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Ilium	3	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Ischium	3	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Ischium	3	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Pubis	3	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Pubis	3	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Femur	1	1	30	0.3	1	4	34	2	2	2	1	2	1	1
12	Femur	1	2	35	0.64	1	4	34	2	2	2	1	2	1	1
12	Tibia	1	1	30	0.27	1	4	34	2	2	2	1	2	1	1
12	Tibia	1	2	2	0.2	1	4	34	2	2	2	1	2	1	1
12	Fibula	1	1	15	0.63	1	4	34	2	2	2	1	2	1	1
12	Fibula	1	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Patella	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Patella	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Calcan	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Calcan	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Talus	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Talus	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	Tarsals	4	1	0	*	*	4	34	*	2	2	1	2	1	1
12	Tarsals	4	2	0	*	*	4	34	*	2	2	1	2	1	1
12	MT	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	MT	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	PP Phal	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	PP Phal	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	PI Phal	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	PI Phal	2	2	0	*	*	4	34	*	2	2	1	2	1	1
12	PD Phal	2	1	0	*	*	4	34	*	2	2	1	2	1	1
12	PD Phal	2	2	0	*	*	4	34	*	2	2	1	2	1	1
14	Pariet	3	1	75	7.5	1	5	32	2	2	1	1	1	1	1
14	Pariet	3	2	95	7.31	1	5	32	2	2	1	1	1	1	1
14	Tempor	3	1	60	30	1	5	32	2	2	1	1	1	1	1
14	Tempor	3	2	90	45	1	5	32	2	2	1	1	1	1	1
14	Maxilla	4	1	40	80	1	5	32	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
14	Maxilla	4	2	40	80	1	5	32	2	2	1	1	1	1	1
14	Palat	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Palat	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Nasal	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Nasal	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Lacrim	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Lacrim	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Zygomat	4	1	65	65	1	5	32	2	2	1	1	1	1	1
14	Zygomat	4	2	45	45	1	5	32	2	2	1	1	1	1	1
14	I Conch	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	I Conch	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Frontal	3	*	80	4	1	5	32	2	2	1	1	1	1	1
14	Occipit	3	*	85	4.05	1	5	32	2	2	1	1	1	1	1
14	Ethmoid	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	Vomer	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	Sphen	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	Hyoid	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	Mand	5	*	90	11.25	1	5	32	2	2	1	1	1	1	1
14	Ribs	3	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Ribs	3	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Sternum	3	*	0	*	*	5	32	*	2	1	1	1	1	1
14	C Vert	4	*	5.71	20	1	5	32	2	2	1	1	1	1	1
14	T Vert	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	L Vert	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	Sacrum	3	*	20	0.4	1	5	32	2	2	1	1	1	1	1
14	Coccyx	4	*	0	*	*	5	32	*	2	1	1	1	1	1
14	Clavic	1	1	20	1.33	1	5	32	2	2	1	1	1	1	1
14	Clavic	1	2	35	7	1	5	32	2	2	1	1	1	1	1
14	Scapula	3	1	5	1.67	1	5	32	2	2	1	1	1	1	1
14	Scapula	3	2	20	0.67	1	5	32	2	2	1	1	1	1	1
14	Humerus	1	1	70	3.5	1	5	32	2	2	1	1	1	1	1
14	Humerus	1	2	20	0.5	1	5	32	2	2	1	1	1	1	1
14	Radius	1	1	85	4.25	1	5	32	2	2	1	1	1	1	1
14	Radius	1	2	1	0.18	1	5	32	2	2	1	1	1	1	1
14	Ulna	1	1	30	1.2	1	5	32	2	2	1	1	1	1	1
14	Ulna	1	2	1	0.18	1	5	32	2	2	1	1	1	1	1
14	Carpals	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Carpals	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	MC	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	MC	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	MP Phal	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	MP Phal	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	MI Phal	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	MI Phal	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	MD Phal	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	MD Phal	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Ilium	3	1	70	2.47	1	5	32	2	2	1	1	1	1	1
14	Ilium	3	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Ischium	3	1	70	2.47	1	5	32	2	2	1	1	1	1	1
14	Ischium	3	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Pubis	3	1	70	2.47	1	5	32	2	2	1	1	1	1	1
14	Pubis	3	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Femur	1	1	90	3	1	5	32	2	2	1	1	1	1	1
14	Femur	1	2	75	0.94	1	5	32	2	2	1	1	1	1	1
14	Tibia	1	1	45	0.45	1	5	32	2	2	1	1	1	1	1
14	Tibia	1	2	35	0.78	1	5	32	2	2	1	1	1	1	1
14	Fibula	1	1	70	7	1	5	32	2	2	1	1	1	1	1
14	Fibula	1	2	20	0.67	1	5	32	2	2	1	1	1	1	1
14	Patella	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Patella	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Calcan	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Calcan	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Talus	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Talus	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	Tarsals	4	1	0	*	*	5	32	*	2	1	1	1	1	1
14	Tarsals	4	2	0	*	*	5	32	*	2	1	1	1	1	1
14	MT	2	1	0	*	*	5	32	*	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
14	MT	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	PP Phal	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	PP Phal	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	PI Phal	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	PI Phal	2	2	0	*	*	5	32	*	2	1	1	1	1	1
14	PD Phal	2	1	0	*	*	5	32	*	2	1	1	1	1	1
14	PD Phal	2	2	0	*	*	5	32	*	2	1	1	1	1	1
15	Pariet	3	1	80	40	1	4	38	2	2	1	1	1	1	1
15	Pariet	3	2	100	50	1	4	38	2	2	1	1	1	1	1
15	Tempor	3	1	90	3	1	4	38	2	2	1	1	1	1	1
15	Tempor	3	2	90	22.5	1	4	38	2	2	1	1	1	1	1
15	Maxilla	4	1	30	30	1	4	38	2	2	1	1	1	1	1
15	Maxilla	4	2	20	20	2	4	38	2	2	1	1	1	1	1
15	Palat	4	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Palat	4	2	0	*	*	4	38	*	2	1	1	1	1	1
15	Nasal	4	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Nasal	4	2	0	*	*	4	38	*	2	1	1	1	1	1
15	Lacrim	4	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Lacrim	4	2	0	*	*	4	38	*	2	1	1	1	1	1
15	Zygomat	4	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Zygomat	4	2	0	*	*	4	38	*	2	1	1	1	1	1
15	I Conch	4	1	0	*	*	4	38	*	2	1	1	1	1	1
15	I Conch	4	2	0	*	*	4	38	*	2	1	1	1	1	1
15	Frontal	3	*	85	8.5	1	4	38	2	2	1	1	1	1	1
15	Occipit	3	*	70	7.78	1	4	38	2	2	1	1	1	1	1
15	Ethmoid	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	Vomer	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	Sphen	4	*	40	3.64	1	4	38	2	2	1	1	1	1	1
15	Hyoid	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	Mand	5	*	75	2.5	2	4	38	2	2	1	1	1	1	1
15	Ribs	3	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Ribs	3	2	0	*	*	4	38	*	2	1	1	1	1	1
15	Sternum	3	*	0	*	*	4	38	*	2	1	1	1	1	1
15	C Vert	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	T Vert	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	L Vert	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	Sacrum	3	*	35	1.17	1	4	38	2	2	1	1	1	1	1
15	Coccyx	4	*	0	*	*	4	38	*	2	1	1	1	1	1
15	Clavic	1	1	50	50	2	4	38	2	2	1	1	1	1	1
15	Clavic	1	2	55	13.75	1	4	38	2	2	1	1	1	1	1
15	Scapula	3	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Scapula	3	2	60	4.29	2	4	38	2	2	1	1	1	1	1
15	Humerus	1	1	85	5.67	1	4	38	2	2	1	1	1	1	1
15	Humerus	1	2	80	13.33	2	4	38	2	2	1	1	1	1	1
15	Radius	1	1	80	13.33	1	4	38	2	2	1	1	1	1	1
15	Radius	1	2	90	90	1	4	38	2	2	1	1	1	1	1
15	Ulna	1	1	75	25	1	4	38	2	2	1	1	1	1	1
15	Ulna	1	2	85	85	1	4	38	2	2	1	1	1	1	1
15	Carpals	4	1	0	*	*	4	38	2	2	1	1	1	1	1
15	Carpals	4	2	10.63	85	1	4	38	2	2	1	1	1	1	1
15	MC	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	MC	2	2	0	*	*	4	38	*	2	1	1	1	1	1
15	MP Phal	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	MP Phal	2	2	60	100	1	4	38	2	2	1	1	1	1	1
15	MI Phal	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	MI Phal	2	2	0	*	*	4	38	*	2	1	1	1	1	1
15	MD Phal	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	MD Phal	2	2	20	100	1	4	38	2	2	1	1	1	1	1
15	Ilium	3	1	65	13	1	4	38	2	2	1	1	1	1	1
15	Ilium	3	2	87.5	5.83	1	4	38	2	2	1	1	1	1	1
15	Ischium	3	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Ischium	3	2	87.5	5.83	1	4	38	2	2	1	1	1	1	1
15	Pubis	3	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Pubis	3	2	0	*	*	4	38	*	2	1	1	1	1	1
15	Femur	1	1	95	23.75	1	4	38	2	2	1	1	1	1	1
15	Femur	1	2	98	24.5	1	4	38	2	2	1	1	1	1	1
15	Tibia	1	1	95	19	1	4	38	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
15	Tibia	1	2	98	19.6	1	4	38	2	2	1	1	1	1	1
15	Fibula	1	1	85	17	1	4	38	2	2	1	1	1	1	1
15	Fibula	1	2	90	10	1	4	38	2	2	1	1	1	1	1
15	Patella	4	1	0	*	*	4	38	*	2	1	1	1	1	1
15	Patella	4	2	70	70	1	4	38	2	2	1	1	1	1	1
15	Calcan	4	1	75	75	1	4	38	2	2	1	1	1	1	1
15	Calcan	4	2	75	75	1	4	38	2	2	1	1	1	1	1
15	Talus	4	1	100	100	1	4	38	2	2	1	1	1	1	1
15	Talus	4	2	100	100	1	4	38	2	2	1	1	1	1	1
15	Tarsals	4	1	62	62	1	4	38	2	2	1	1	1	1	1
15	Tarsals	4	2	79	79	1	4	38	2	2	1	1	1	1	1
15	MT	2	1	10	12.5	1	4	38	2	2	1	1	1	1	1
15	MT	2	2	74	52.86	1	4	38	2	2	1	1	1	1	1
15	PP Phal	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	PP Phal	2	2	0	*	*	4	38	*	2	1	1	1	1	1
15	PI Phal	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	PI Phal	2	2	0	*	*	4	38	*	2	1	1	1	1	1
15	PD Phal	2	1	0	*	*	4	38	*	2	1	1	1	1	1
15	PD Phal	2	2	0	*	*	4	38	*	2	1	1	1	1	1
16	Pariet	3	1	95	31.67	1	2	36	2	2	1	1	2	1	1
16	Pariet	3	2	90	90	1	2	36	2	2	1	1	2	1	1
16	Tempor	3	1	70	35	1	2	36	2	2	1	1	2	1	1
16	Tempor	3	2	35	35	1	2	36	2	2	1	1	2	1	1
16	Maxilla	4	1	35	8.75	1	2	36	2	2	1	1	2	1	1
16	Maxilla	4	2	30	30	1	2	36	2	2	1	1	2	1	1
16	Palat	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Palat	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Nasal	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Nasal	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Lacrim	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Lacrim	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Zygomat	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Zygomat	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	I Conch	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	I Conch	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Frontal	3	*	90	6	1	2	36	2	2	1	1	2	1	1
16	Occipit	3	*	70	70	1	2	36	2	2	1	1	2	1	1
16	Ethmoid	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Vomer	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Sphen	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Hyoid	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Mand	5	*	70	7	1	2	36	2	2	1	1	2	1	1
16	Ribs	3	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Ribs	3	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Sternum	3	*	0	*	*	2	36	*	2	1	1	2	1	1
16	C Vert	4	*	87.5	87.5	1	2	36	2	2	1	1	2	1	1
16	T Vert	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	L Vert	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Sacrum	3	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Coccyx	4	*	0	*	*	2	36	*	2	1	1	2	1	1
16	Clavic	1	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Clavic	1	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Scapula	3	1	20	2.86	1	2	36	2	2	1	1	2	1	1
16	Scapula	3	2	25	8.33	1	2	36	2	2	1	1	2	1	1
16	Humerus	1	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Humerus	1	*	10	10	1	2	36	2	2	1	1	2	1	1
16	Humerus	1	2	85	5.31	2	2	36	2	2	1	1	2	1	1
16	Radius	1	*	75	37.5	2	2	36	2	2	1	1	2	1	1
16	Radius	1	*	75	25	2	2	36	2	2	1	1	2	1	1
16	Ulna	1	*	5	0.2	1	2	36	2	2	1	1	2	1	1
16	Ulna	4	*	80	80	2	2	36	2	2	1	1	2	1	1
16	Carpals	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Carpals	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	MC	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	MC	2	2	0	*	*	2	36	*	2	1	1	2	1	1
16	MP Phal	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	MP Phal	2	2	0	*	*	2	36	*	2	1	1	2	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
16	MI Phal	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	MI Phal	2	2	0	*	*	2	36	*	2	1	1	2	1	1
16	MD Phal	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	MD Phal	2	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Ilium	3	1	75	12.5	1	2	36	2	2	1	1	2	1	1
16	Ilium	3	2	70	3.68	2	2	36	2	2	1	1	2	1	1
16	Ischium	3	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Ischium	3	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Pubis	3	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Pubis	3	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Femur	1	1	80	2.29	1	2	36	2	2	1	1	2	1	1
16	Femur	1	2	85	5.67	2	2	36	2	2	1	1	2	1	1
16	Tibia	1	1	75	37.5	1	2	36	2	2	1	1	2	1	1
16	Tibia	1	2	70	5.38	2	2	36	2	2	1	1	2	1	1
16	Fibula	1	1	10	0.4	1	2	36	2	2	1	1	2	1	1
16	Fibula	1	2	50	3.33	2	2	36	2	2	1	1	2	1	1
16	Patella	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Patella	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Calcan	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Calcan	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Talus	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Talus	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	Tarsals	4	1	0	*	*	2	36	*	2	1	1	2	1	1
16	Tarsals	4	2	0	*	*	2	36	*	2	1	1	2	1	1
16	MT	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	MT	2	2	0	*	*	2	36	*	2	1	1	2	1	1
16	PP Phal	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	PP Phal	2	2	0	*	*	2	36	*	2	1	1	2	1	1
16	PI Phal	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	PI Phal	2	2	0	*	*	2	36	*	2	1	1	2	1	1
16	PD Phal	2	1	0	*	*	2	36	*	2	1	1	2	1	1
16	PD Phal	2	2	0	*	*	2	36	*	2	1	1	2	1	1
17	Pariet	3	1	25	25	1	2	52	2	2	1	1	1	1	1
17	Pariet	3	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Tempor	3	1	40	40	1	2	52	2	2	1	1	1	1	1
17	Tempor	3	2	40	40	1	2	52	2	2	1	1	1	1	1
17	Maxilla	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Maxilla	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Palat	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Palat	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Nasal	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Nasal	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Lacrim	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Lacrim	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Zygomat	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Zygomat	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	I Conch	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	I Conch	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Frontal	3	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Occipit	3	*	75	3.75	1	2	52	2	2	1	1	1	1	1
17	Ethmoid	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Vomer	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Sphen	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Hyoid	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Mand	5	*	5	0.17	1	2	52	2	2	1	1	1	1	1
17	Ribs	3	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Ribs	3	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Sternum	3	*	0	*	*	2	52	*	2	1	1	1	1	1
17	C Vert	4	*	60	60	1	2	52	2	2	1	1	1	1	1
17	T Vert	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	L Vert	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Sacrum	3	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Coccyx	4	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Clavic	1	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Clavic	1	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Scapula	3	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Scapula	3	2	0	*	*	2	52	*	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
17	Humerus	1	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Humerus	1	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Radius	1	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Radius	1	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Ulna	1	*	25	25	1	2	52	2	2	1	1	1	1	1
17	Ulna	1	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Carpals	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Carpals	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	MC	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	MC	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	MP Phal	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	MP Phal	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	MI Phal	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	MI Phal	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	MD Phal	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	MD Phal	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Ilium	3	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Ilium	3	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Ischium	3	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Ischium	3	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Pubis	3	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Pubis	3	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Femur	1	*	10	0.2	1	2	52	2	2	1	1	1	1	1
17	Femur	1	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Tibia	1	*	50	2.5	1	2	52	2	2	1	1	1	1	1
17	Tibia	1	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Fibula	1	*	5	0.83	1	2	52	2	2	1	1	1	1	1
17	Fibula	1	*	0	*	*	2	52	*	2	1	1	1	1	1
17	Patella	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Patella	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Calcan	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Calcan	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Talus	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Talus	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	Tarsals	4	1	0	*	*	2	52	*	2	1	1	1	1	1
17	Tarsals	4	2	0	*	*	2	52	*	2	1	1	1	1	1
17	MT	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	MT	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	PP Phal	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	PP Phal	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	PI Phal	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	PI Phal	2	2	0	*	*	2	52	*	2	1	1	1	1	1
17	PD Phal	2	1	0	*	*	2	52	*	2	1	1	1	1	1
17	PD Phal	2	2	0	*	*	2	52	*	2	1	1	1	1	1
19	Pariet	3	1	90	5.63	1	5	40	2	2	1	1	1	1	1
19	Pariet	3	2	95	15.83	1	5	40	2	2	1	1	1	1	1
19	Tempor	3	1	75	25	1	5	40	2	2	1	1	1	1	1
19	Tempor	3	2	80	26.67	1	5	40	2	2	1	1	1	1	1
19	Maxilla	4	1	30	7.5	1	5	40	2	2	1	1	1	1	1
19	Maxilla	4	2	40	40	1	5	40	2	2	1	1	1	1	1
19	Palat	4	1	0	*	*	5	40	*	2	1	1	1	1	1
19	Palat	4	2	0	*	*	5	40	*	2	1	1	1	1	1
19	Nasal	4	1	0	*	*	5	40	*	2	1	1	1	1	1
19	Nasal	4	2	0	*	*	5	40	*	2	1	1	1	1	1
19	Lacrim	4	1	0	*	*	5	40	*	2	1	1	1	1	1
19	Lacrim	4	2	0	*	*	5	40	*	2	1	1	1	1	1
19	Zygomat	4	1	100	100	1	5	40	2	2	1	1	1	1	1
19	Zygomat	4	2	100	100	1	5	40	2	2	1	1	1	1	1
19	I Conch	4	1	0	*	*	5	40	*	2	1	1	1	1	1
19	I Conch	4	2	0	*	*	5	40	*	2	1	1	1	1	1
19	Frontal	3	*	85	21.25	1	5	40	2	2	1	1	1	1	1
19	Occipit	3	*	65	7.22	1	5	40	2	2	1	1	1	1	1
19	Ethmoid	4	*	0	*	*	5	40	*	2	1	1	1	1	1
19	Vomer	4	*	0	*	*	5	40	*	2	1	1	1	1	1
19	Sphen	4	*	15	15	1	5	40	2	2	1	1	1	1	1
19	Hyoid	4	*	0	*	*	5	40	*	2	1	1	1	1	1
19	Mand	5	*	90	15	1	5	40	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
19	Ribs	3	1	0	•	•	5	40	•	2	1	1	1	1	1
19	Ribs	3	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Sternum	3	•	0	•	•	5	40	•	2	1	1	1	1	1
19	C Vert	4	•	0	•	•	5	40	•	2	1	1	1	1	1
19	T Vert	4	•	0	•	•	5	40	•	2	1	1	1	1	1
19	L Vert	4	•	0	•	•	5	40	•	2	1	1	1	1	1
19	Sacrum	3	•	10	0.4	1	5	40	2	2	1	1	1	1	1
19	Coccyx	4	•	0	•	•	5	40	•	2	1	1	1	1	1
19	Clavic	1	1	35	35	1	5	40	2	2	1	1	1	1	1
19	Clavic	1	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Scapula	3	1	0	•	•	5	40	•	2	1	1	1	1	1
19	Scapula	3	2	15	1.15	1	5	40	2	2	1	1	1	1	1
19	Humerus	1	1	65	2.95	1	5	40	2	2	1	1	1	1	1
19	Humerus	1	2	60	4.62	1	5	40	2	2	1	1	1	1	1
19	Radius	1	1	60	3	1	5	40	2	2	1	1	1	1	1
19	Radius	1	2	35	1.75	1	5	40	2	2	1	1	1	1	1
19	Ulna	1	1	65	2.6	1	5	40	2	2	1	1	1	1	1
19	Ulna	1	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Carpals	4	1	0	•	•	5	40	•	2	1	1	1	1	1
19	Carpals	4	2	0	•	•	5	40	•	2	1	1	1	1	1
19	MC	2	1	14	35	1	5	40	•	2	1	1	1	1	1
19	MC	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	MP Phal	2	1	20	12.5	1	5	40	•	2	1	1	1	1	1
19	MP Phal	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	MI Phal	2	1	0	•	•	5	40	•	2	1	1	1	1	1
19	MI Phal	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	MD Phal	2	1	0	•	•	5	40	•	2	1	1	1	1	1
19	MD Phal	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Ilium	3	1	60	7.2	1	5	40	2	2	1	1	1	1	1
19	Ilium	3	2	30	3.46	1	5	40	2	2	1	1	1	1	1
19	Ischium	3	1	60	7.2	1	5	40	2	2	1	1	1	1	1
19	Ischium	3	2	30	3.46	1	5	40	2	2	1	1	1	1	1
19	Pubis	3	1	60	7.2	1	5	40	2	2	1	1	1	1	1
19	Pubis	3	2	30	3.46	1	5	40	2	2	1	1	1	1	1
19	Femur	1	1	90	0.72	1	5	40	2	2	1	1	1	1	1
19	Femur	1	2	85	2.58	1	5	40	2	2	1	1	1	1	1
19	Tibia	1	1	85	1.06	1	5	40	2	2	1	1	1	1	1
19	Tibia	1	2	80	2.5	1	5	40	2	2	1	1	1	1	1
19	Fibula	1	1	90	1.5	1	5	40	2	2	1	1	1	1	1
19	Fibula	1	2	65	1.97	1	5	40	2	2	1	1	1	1	1
19	Patella	4	1	60	12	1	5	40	2	2	1	1	1	1	1
19	Patella	4	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Calcan	4	1	15	5	1	5	40	2	2	1	1	1	1	1
19	Calcan	4	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Talus	4	1	80	40	1	5	40	2	2	1	1	1	1	1
19	Talus	4	2	0	•	•	5	40	•	2	1	1	1	1	1
19	Tarsals	4	1	0	•	•	5	40	•	2	1	1	1	1	1
19	Tarsals	4	2	0	•	•	5	40	•	2	1	1	1	1	1
19	MT	2	1	0	•	•	5	40	•	2	1	1	1	1	1
19	MT	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	PP Phal	2	1	0	•	•	5	40	•	2	1	1	1	1	1
19	PP Phal	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	PI Phal	2	1	0	•	•	5	40	•	2	1	1	1	1	1
19	PI Phal	2	2	0	•	•	5	40	•	2	1	1	1	1	1
19	PD Phal	2	1	0	•	•	5	40	•	2	1	1	1	1	1
19	PD Phal	2	2	0	•	•	5	40	•	2	1	1	1	1	1
21	Pariet	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Pariet	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Tempor	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Tempor	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Maxilla	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Maxilla	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Palat	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Palat	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Nasal	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Nasal	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Lacrim	4	1	0	•	•	7	36	•	2	•	1	1	1	•

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
21	Lacrim	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Zygomat	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Zygomat	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	I Conch	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	I Conch	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Frontal	3	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Occipit	3	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Ethmoid	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Vomer	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Sphen	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Hyoid	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Mand	5	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Ribs	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Ribs	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Sternum	3	•	0	•	•	7	36	•	2	•	1	1	1	•
21	C Vert	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	T Vert	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	L Vert	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Sacrum	3	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Coccyx	4	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Clavic	1	1	85	28.33	2	7	36	2	2	•	1	1	1	•
21	Clavic	1	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Scapula	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Scapula	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Humerus	1	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Humerus	1	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Radius	1	•	50	4.17	2	7	36	2	2	•	1	1	1	•
21	Radius	1	•	0	•	•	7	36	•	2	•	1	1	1	•
21	Ulna	1	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Ulna	1	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Carpals	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Carpals	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	MC	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	MC	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	MP Phal	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	MP Phal	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	MI Phal	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	MI Phal	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	MD Phal	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	MD Phal	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Ilium	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Ilium	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Ischium	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Ischium	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Pubis	3	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Pubis	3	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Femur	1	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Femur	1	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Tibia	1	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Tibia	1	2	95	5.94	1	7	36	2	2	•	1	1	1	•
21	Fibula	1	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Fibula	1	2	85	3.86	2	7	36	2	2	•	1	1	1	•
21	Patella	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Patella	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	Calcan	4	1	70	70	2	7	36	2	2	•	1	1	1	•
21	Calcan	4	2	65	65	2	7	36	2	2	•	1	1	1	•
21	Talus	4	1	70	70	2	7	36	2	2	•	1	1	1	•
21	Talus	4	2	65	65	2	7	36	2	2	•	1	1	1	•
21	Tarsals	4	1	0	•	•	7	36	•	2	•	1	1	1	•
21	Tarsals	4	2	0	•	•	7	36	•	2	•	1	1	1	•
21	MT	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	MT	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	PP Phal	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	PP Phal	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	PI Phal	2	1	0	•	•	7	36	•	2	•	1	1	1	•
21	PI Phal	2	2	0	•	•	7	36	•	2	•	1	1	1	•
21	PD Phal	2	1	0	•	•	7	36	•	2	•	1	1	1	•

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
21	PD Phal	2	2	0	*	*	7	36	*	2	*	1	1	1	*
22	Pariet	3	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Pariet	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Tempor	3	1	60	30	1	7	34	2	2	2	1	1	1	1
22	Tempor	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Maxilla	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Maxilla	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Palat	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Palat	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Nasal	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Nasal	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Lacrim	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Lacrim	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Zygomat	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Zygomat	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	I Conch	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	I Conch	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Frontal	3	*	15	3	1	7	34	2	2	2	1	1	1	1
22	Occipit	3	*	25	25	1	7	34	2	2	2	1	1	1	1
22	Ethmoid	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Vomer	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Sphen	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Hyoid	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Mand	5	*	20	10	1	7	34	2	2	2	1	1	1	1
22	Ribs	3	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Ribs	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Sternum	3	*	0	*	*	7	34	*	2	2	1	1	1	1
22	C Vert	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	T Vert	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	L Vert	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Sacrum	3	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Coccyx	4	*	0	*	*	7	34	*	2	2	1	1	1	1
22	Clavic	1	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Clavic	1	2	55	55	1	7	34	2	2	2	1	1	1	1
22	Scapula	3	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Scapula	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Humerus	1	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Humerus	1	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Radius	1	1	40	2	1	7	34	2	2	2	1	1	1	1
22	Radius	1	2	40	13.33	1	7	34	2	2	2	1	1	1	1
22	Ulna	1	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Ulna	1	2	50	25	1	7	34	2	2	2	1	1	1	1
22	Carpals	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Carpals	4	2	0	*	*	7	34	*	2	2	1	1	1	1
22	MC	2	1	0	*	*	7	34	*	2	2	1	1	1	1
22	MC	2	2	0	*	*	7	34	*	2	2	1	1	1	1
22	MP Phal	2	1	0	*	*	7	34	*	2	2	1	1	1	1
22	MP Phal	2	2	0	*	*	7	34	*	2	2	1	1	1	1
22	MI Phal	2	1	0	*	*	7	34	*	2	2	1	1	1	1
22	MI Phal	2	2	0	*	*	7	34	*	2	2	1	1	1	1
22	MD Phal	2	1	0	*	*	7	34	*	2	2	1	1	1	1
22	MD Phal	2	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Ilium	3	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Ilium	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Ischium	3	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Ischium	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Pubis	3	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Pubis	3	2	0	*	*	7	34	*	2	2	1	1	1	1
22	Femur	1	1	20	0.57	1	7	34	2	2	2	1	1	1	1
22	Femur	1	2	70	2.33	1	7	34	2	2	2	1	1	1	1
22	Tibia	1	1	30	0.5	1	7	34	2	2	2	1	1	1	1
22	Tibia	1	2	35	0.47	1	7	34	2	2	2	1	1	1	1
22	Fibula	1	1	35	1	1	7	34	2	2	2	1	1	1	1
22	Fibula	1	2	10	0.2	1	7	34	2	2	2	1	1	1	1
22	Patella	4	1	0	*	*	7	34	*	2	2	1	1	1	1
22	Patella	4	2	65	65	1	7	34	2	2	2	1	1	1	1
22	Calcan	4	1	0	*	*	7	34	*	2	2	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
22	Calcan	4	2	0	•	•	7	34	•	2	2	1	1	1	1
22	Talus	4	1	0	•	•	7	34	•	2	2	1	1	1	1
22	Talus	4	2	0	•	•	7	34	•	2	2	1	1	1	1
22	Tarsals	4	1	0	•	•	7	34	•	2	2	1	1	1	1
22	Tarsals	4	2	0	•	•	7	34	•	2	2	1	1	1	1
22	MT	2	1	0	•	•	7	34	•	2	2	1	1	1	1
22	MT	2	2	0	•	•	7	34	•	2	2	1	1	1	1
22	PP Phal	2	1	0	•	•	7	34	•	2	2	1	1	1	1
22	PP Phal	2	2	0	•	•	7	34	•	2	2	1	1	1	1
22	PI Phal	2	1	0	•	•	7	34	•	2	2	1	1	1	1
22	PI Phal	2	2	0	•	•	7	34	•	2	2	1	1	1	1
22	PD Phal	2	1	0	•	•	7	34	•	2	2	1	1	1	1
22	PD Phal	2	2	0	•	•	7	34	•	2	2	1	1	1	1
23	Pariet	3	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Pariet	3	2	15	15	1	7	34	2	2	1	1	1	1	1
23	Tempor	3	1	45	45	1	7	34	2	2	1	1	1	1	1
23	Tempor	3	2	40	5	1	7	34	2	2	1	1	1	1	1
23	Maxilla	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Maxilla	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Palat	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Palat	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Nasal	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Nasal	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Lacrim	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Lacrim	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Zygomat	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Zygomat	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	I Conch	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	I Conch	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Frontal	3	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Occipit	3	•	20	20	1	7	34	2	2	1	1	1	1	1
23	Ethmoid	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Vomer	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Sphen	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Hyoid	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Mand	5	•	10	0.71	1	7	34	2	2	1	1	1	1	1
23	Ribs	3	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Ribs	3	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Sternum	3	•	0	•	•	7	34	•	2	1	1	1	1	1
23	C Vert	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	T Vert	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	L Vert	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Sacrum	3	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Coccyx	4	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Clavic	1	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Clavic	1	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Scapula	3	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Scapula	3	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Humerus	1	1	5	0.07	1	7	34	2	2	1	1	1	1	1
23	Humerus	1	2	5	0.25	1	7	34	2	2	1	1	1	1	1
23	Radius	1	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Radius	1	2	5	0.25	1	7	34	2	2	1	1	1	1	1
23	Ulna	1	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Ulna	1	2	5	0.63	1	7	34	2	2	1	1	1	1	1
23	Carpals	4	1	0	•	•	7	34	•	2	1	1	1	1	1
23	Carpals	4	2	0	•	•	7	34	•	2	1	1	1	1	1
23	MC	2	1	0	•	•	7	34	•	2	1	1	1	1	1
23	MC	2	2	0	•	•	7	34	•	2	1	1	1	1	1
23	MP Phal	2	1	0	•	•	7	34	•	2	1	1	1	1	1
23	MP Phal	2	2	0	•	•	7	34	•	2	1	1	1	1	1
23	MI Phal	2	1	0	•	•	7	34	•	2	1	1	1	1	1
23	MI Phal	2	2	0	•	•	7	34	•	2	1	1	1	1	1
23	MD Phal	2	1	0	•	•	7	34	•	2	1	1	1	1	1
23	MD Phal	2	2	0	•	•	7	34	•	2	1	1	1	1	1
23	Ilium	3	•	5	0.43	1	7	34	2	2	1	1	1	1	1
23	Ilium	3	•	0	•	•	7	34	•	2	1	1	1	1	1
23	Ischium	3	•	5	0.43	1	7	34	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
23	Ischium	3	*	0	*	*	7	34	*	2	1	1	1	1	1
23	Pubis	3	*	5	0.43	1	7	34	2	2	1	1	1	1	1
23	Pubis	3	*	0	*	*	7	34	*	2	1	1	1	1	1
23	Femur	1	1	25	0.21	1	7	34	2	2	1	1	1	1	1
23	Femur	1	2	45	0.56	1	7	34	2	2	1	1	1	1	1
23	Tibia	1	1	5	0.06	1	7	34	2	2	1	1	1	1	1
23	Tibia	1	2	5	0.06	1	7	34	2	2	1	1	1	1	1
23	Fibula	1	1	5	0.2	1	7	34	2	2	1	1	1	1	1
23	Fibula	1	2	0	*	*	7	34	*	2	1	1	1	1	1
23	Patella	4	1	0	*	*	7	34	*	2	1	1	1	1	1
23	Patella	4	2	0	*	*	7	34	*	2	1	1	1	1	1
23	Calcan	4	1	0	*	*	7	34	*	2	1	1	1	1	1
23	Calcan	4	2	0	*	*	7	34	*	2	1	1	1	1	1
23	Talus	4	1	0	*	*	7	34	*	2	1	1	1	1	1
23	Talus	4	2	0	*	*	7	34	*	2	1	1	1	1	1
23	Tarsals	4	1	0	*	*	7	34	*	2	1	1	1	1	1
23	Tarsals	4	2	0	*	*	7	34	*	2	1	1	1	1	1
23	MT	2	1	0	*	*	7	34	*	2	1	1	1	1	1
23	MT	2	2	0	*	*	7	34	*	2	1	1	1	1	1
23	PP Phal	2	1	0	*	*	7	34	*	2	1	1	1	1	1
23	PP Phal	2	2	0	*	*	7	34	*	2	1	1	1	1	1
23	PI Phal	2	1	0	*	*	7	34	*	2	1	1	1	1	1
23	PI Phal	2	2	0	*	*	7	34	*	2	1	1	1	1	1
23	PD Phal	2	1	0	*	*	7	34	*	2	1	1	1	1	1
23	PD Phal	2	2	0	*	*	7	34	*	2	1	1	1	1	1
24	Pariet	3	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Pariet	3	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Tempor	3	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Tempor	3	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Maxilla	4	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Maxilla	4	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Palat	4	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Palat	4	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Nasal	4	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Nasal	4	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Lacrim	4	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Lacrim	4	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Zygomat	4	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Zygomat	4	2	0	*	*	7	36	*	2	2	1	1	1	1
24	I Conch	4	1	0	*	*	7	36	*	2	2	1	1	1	1
24	I Conch	4	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Frontal	3	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Occipit	3	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Ethmoid	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Vomer	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Sphen	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Hyoid	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Mand	5	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Ribs	3	1	0	*	*	7	36	*	2	2	1	1	1	1
24	Ribs	3	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Sternum	3	*	0	*	*	7	36	*	2	2	1	1	1	1
24	C Vert	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	T Vert)	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	L Vert	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Sacrum	3	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Coccyx	4	*	0	*	*	7	36	*	2	2	1	1	1	1
24	Clavic	1	1	80	80	1	7	36	2	2	2	1	1	1	1
24	Clavic	1	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Scapula	3	1	30	30	1	7	36	2	2	2	1	1	1	1
24	Scapula	3	2	15	0.43	1	7	36	2	2	2	1	1	1	1
24	Humerus	1	1	90	12.86	1	7	36	2	2	2	1	1	1	1
24	Humerus	1	2	90	30	1	7	36	2	2	2	1	1	1	1
24	Radius	1	1	40	1	1	7	36	2	2	2	1	1	1	1
24	Radius	1	2	40	2.67	1	7	36	2	2	2	1	1	1	1
24	Ulna	1	1	65	4.33	1	7	36	2	2	2	1	1	1	1
24	Ulna	1	2	0	*	*	7	36	*	2	2	1	1	1	1
24	Carpals	4	1	12.5	100	1	7	36	2	2	2	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
24	Carpals	4	2	0	•	•	7	36	•	2	2	1	1	1	1
24	MC	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	MC	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	MP Phal	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	MP Phal	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	MI Phal	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	MI Phal	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	MD Phal	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	MD Phal	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	Ilium	3	1	5	0.2	1	7	36	1	2	2	1	1	1	1
24	Ilium	3	2	40	4.8	1	7	36	2	2	2	1	1	1	1
24	Ischium	3	1	5	0.2	1	7	36	1	2	2	1	1	1	1
24	Ischium	3	2	40	4.8	1	7	36	2	2	2	1	1	1	1
24	Pubis	3	1	5	0.2	1	7	36	1	2	2	1	1	1	1
24	Pubis	3	2	40	4.8	1	7	36	2	2	2	1	1	1	1
24	Femur	1	1	60	0.43	1	7	36	1	2	2	1	1	1	1
24	Femur	1	2	85	1.55	1	7	36	2	2	2	1	1	1	1
24	Tibia	1	1	65	1.44	1	7	36	2	2	2	1	1	1	1
24	Tibia	1	2	20	0.44	1	7	36	2	2	2	1	1	1	1
24	Fibula	1	1	10	0.15	1	7	36	2	2	2	1	1	1	1
24	Fibula	1	2	5	0.33	1	7	36	2	2	2	1	1	1	1
24	Patella	4	1	0	•	•	7	36	•	2	2	1	1	1	1
24	Patella	4	2	0	•	•	7	36	•	2	2	1	1	1	1
24	Calcan	4	1	0	•	•	7	36	•	2	2	1	1	1	1
24	Calcan	4	2	0	•	•	7	36	•	2	2	1	1	1	1
24	Talus	4	1	0	•	•	7	36	•	2	2	1	1	1	1
24	Talus	4	2	0	•	•	7	36	•	2	2	1	1	1	1
24	Tarsals	4	1	0	•	•	7	36	•	2	2	1	1	1	1
24	Tarsals	4	2	0	•	•	7	36	•	2	2	1	1	1	1
24	MT	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	MT	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	PP Phal	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	PP Phal	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	PI Phal	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	PI Phal	2	2	0	•	•	7	36	•	2	2	1	1	1	1
24	PD Phal	2	1	0	•	•	7	36	•	2	2	1	1	1	1
24	PD Phal	2	2	0	•	•	7	36	•	2	2	1	1	1	1
25	Pariet	3	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Pariet	3	2	0	•	•	5	48	•	1	1	1	1	1	1
25	Tempor	3	1	10	3.33	1	5	48	1	1	1	1	1	1	1
25	Tempor	3	2	15	15	1	5	48	1	1	1	1	1	1	1
25	Maxilla	4	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Maxilla	4	2	10	10	1	5	48	1	1	1	1	1	1	1
25	Palat	4	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Palat	4	2	0	•	•	5	48	•	1	1	1	1	1	1
25	Nasal	4	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Nasal	4	2	0	•	•	5	48	•	1	1	1	1	1	1
25	Lacrim	4	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Lacrim	4	2	0	•	•	5	48	•	1	1	1	1	1	1
25	Zygomat	4	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Zygomat	4	2	0	•	•	5	48	•	1	1	1	1	1	1
25	I Conch	4	1	0	•	•	5	48	•	1	1	1	1	1	1
25	I Conch	4	2	0	•	•	5	48	•	1	1	1	1	1	1
25	Frontal	3	•	5	5	1	5	48	1	1	1	1	1	1	1
25	Occipit	3	•	15	7.5	1	5	48	1	1	1	1	1	1	1
25	Ethmoid	4	•	0	•	•	5	48	•	1	1	1	1	1	1
25	Vomer	4	•	0	•	•	5	48	•	1	1	1	1	1	1
25	Sphen	4	•	0	•	•	5	48	•	1	1	1	1	1	1
25	Hyoid	4	•	0	•	•	5	48	•	1	1	1	1	1	1
25	Mand	5	•	50	3.85	1	5	48	1	1	1	1	1	1	1
25	Ribs	3	1	0	•	•	5	48	•	1	1	1	1	1	1
25	Ribs	3	2	0	•	•	5	48	•	1	1	1	1	1	1
25	Sternum	3	•	0	•	•	5	48	•	1	1	1	1	1	1
25	C Vert	4	•	70	10	1	5	48	1	1	1	1	1	1	1
25	T Vert	4	•	0	•	•	5	48	•	1	1	1	1	1	1
25	L Vert	4	•	0	•	•	5	48	•	1	1	1	1	1	1
25	Sacrum	3	•	0	•	•	5	48	•	1	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
25	Coccyx	4	*	0	*	*	5	48	*	1	1	1	1	1	1
25	Clavic	1	1	80	13.33	1	5	48	1	1	1	1	1	1	1
25	Clavic	1	2	40	4.44	1	5	48	1	1	1	1	1	1	1
25	Scapula	3	1	30	1.2	1	5	48	1	1	1	1	1	1	1
25	Scapula	3	2	15	0.5	1	5	48	1	1	1	1	1	1	1
25	Humerus	1	1	65	1.12	1	5	48	2	1	1	1	1	1	1
25	Humerus	1	2	50	0.79	1	5	48	1	1	1	1	1	1	1
25	Radius	1	1	40	1.03	1	5	48	2	1	1	1	1	1	1
25	Radius	1	2	25	1.04	1	5	48	1	1	1	1	1	1	1
25	Ulna	1	1	40	1.11	1	5	48	2	1	1	1	1	1	1
25	Ulna	1	2	45	2.65	1	5	48	1	1	1	1	1	1	1
25	Carpals	4	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Carpals	4	2	0	*	*	5	48	*	1	1	1	1	1	1
25	MC	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	MC	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	MP Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	MP Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	MI Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	MI Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	MD Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	MD Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Ilium	3	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Ilium	3	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Ischium	3	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Ischium	3	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Pubis	3	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Pubis	3	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Femur	1	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Femur	1	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Tibia	1	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Tibia	1	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Fibula	1	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Fibula	1	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Patella	4	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Patella	4	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Calcan	4	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Calcan	4	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Talus	4	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Talus	4	2	0	*	*	5	48	*	1	1	1	1	1	1
25	Tarsals	4	1	0	*	*	5	48	*	1	1	1	1	1	1
25	Tarsals	4	2	0	*	*	5	48	*	1	1	1	1	1	1
25	MT	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	MT	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	PP Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	PP Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	PI Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	PI Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
25	PD Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
25	PD Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
26	Pariet	3	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Pariet	3	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Tempor	3	1	35	17.5	2	2	38	2	2	*	1	1	1	*
26	Tempor	3	2	40	2.67	2	2	38	2	2	*	1	1	1	*
26	Maxilla	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Maxilla	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Palat	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Palat	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Nasal	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Nasal	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Lacrim	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Lacrim	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Zygomat	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Zygomat	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	I Conch	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	I Conch	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Frontal	3	*	40	20	2	2	38	2	2	*	1	1	1	*
26	Occipit	3	*	45	1.96	2	2	38	2	2	*	1	1	1	*

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
26	Ethmoid	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Vomer	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Sphen	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Hyoid	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Mand	5	*	40	2.11	2	2	38	2	2	*	1	1	1	*
26	Ribs	3	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Ribs	3	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Sternum	3	*	0	*	*	2	38	*	2	*	1	1	1	*
26	C Vert	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	T Vert	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	L Vert	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Sacrum	3	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Coccyx	4	*	0	*	*	2	38	*	2	*	1	1	1	*
26	Clavic	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Clavic	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Scapula	3	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Scapula	3	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Humerus	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Humerus	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Radius	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Radius	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Ulna	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Ulna	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Carpals	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Carpals	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	MC	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	MC	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	MP Phal	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	MP Phal	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	MI Phal	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	MI Phal	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	MD Phal	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	MD Phal	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Ilium	3	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Ilium	3	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Ischium	3	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Ischium	3	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Pubis	3	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Pubis	3	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Femur	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Femur	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Tibia	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Tibia	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Fibula	1	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Fibula	1	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Patella	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Patella	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Calcan	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Calcan	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Talus	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Talus	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	Tarsals	4	1	0	*	*	2	38	*	2	*	1	1	1	*
26	Tarsals	4	2	0	*	*	2	38	*	2	*	1	1	1	*
26	MT	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	MT	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	PP Phal	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	PP Phal	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	PI Phal	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	PI Phal	2	2	0	*	*	2	38	*	2	*	1	1	1	*
26	PD Phal	2	1	0	*	*	2	38	*	2	*	1	1	1	*
26	PD Phal	2	2	0	*	*	2	38	*	2	*	1	1	1	*
27.1	Pariet	3	1	95	31.67	1	5	44	2	2	1	3	1	1	1
27.1	Pariet	3	2	98	16.33	1	5	44	2	2	1	3	1	1	1
27.1	Tempor	3	1	90	90	1	5	44	2	2	1	3	1	1	1
27.1	Tempor	3	2	95	95	1	5	44	2	2	1	3	1	1	1
27.1	Maxilla	4	1	60	12	1	5	44	2	2	1	3	1	1	1
27.1	Maxilla	4	2	55	27.5	1	5	44	2	2	1	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
27.1	Palat	4	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Palat	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Nasal	4	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Nasal	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Lacrim	4	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Lacrim	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Zygomat	4	1	100	100	1	5	44	2	2	1	3	1	1	1
27.1	Zygomat	4	2	100	100	1	5	44	2	2	1	3	1	1	1
27.1	I Conch	4	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	I Conch	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Frontal	3	•	70	8.75	1	5	44	2	2	1	3	1	1	1
27.1	Occipit	3	•	80	5.71	1	5	44	2	2	1	3	1	1	1
27.1	Ethmoid	4	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Vomer	4	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Sphen	4	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Hyoid	4	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Mand	5	•	75	2.5	1	5	44	2	2	1	3	1	1	1
27.1	Ribs	3	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Ribs	3	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Sternum	3	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	C Vert	4	•	27.57	96.5	1	5	44	2	2	1	3	1	1	1
27.1	T Vert	4	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	L Vert	4	•	50	5	1	5	44	2	2	1	3	1	1	1
27.1	Sacrum	3	•	40	0.29	1	5	44	2	2	1	3	1	1	1
27.1	Coccyx	4	•	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Clavic	1	1	15	0.94	1	5	44	2	2	1	3	1	1	1
27.1	Clavic	1	2	70	11.67	1	5	44	2	2	1	3	1	1	1
27.1	Scapula	3	1	25	0.86	1	5	44	2	2	1	3	1	1	1
27.1	Scapula	3	2	5	2.5	1	5	44	2	2	1	3	1	1	1
27.1	Humerus	1	1	75	4.69	1	5	44	2	2	1	3	1	1	1
27.1	Humerus	1	2	85	85	1	5	44	2	2	1	3	1	1	1
27.1	Radius	1	1	7.5	0.47	1	5	44	2	2	1	3	1	1	1
27.1	Radius	1	2	85	28.33	1	5	44	2	2	1	3	1	1	1
27.1	Ulna	1	1	7.5	0.47	1	5	44	2	2	1	3	1	1	1
27.1	Ulna	1	2	85	28.33	1	5	44	2	2	1	3	1	1	1
27.1	Carpals	4	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Carpals	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MC	2	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MC	2	2	47	47	1	5	44	2	2	1	3	1	1	1
27.1	MP Phal	2	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MP Phal	2	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MI Phal	2	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MI Phal	2	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MD Phal	2	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MD Phal	2	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Ilium	3	1	75	4.29	1	5	44	2	2	1	3	1	1	1
27.1	Ilium	3	2	87.5	5.83	1	5	44	2	2	1	3	1	1	1
27.1	Ischium	3	1	75	4.29	1	5	44	2	2	1	3	1	1	1
27.1	Ischium	3	2	87.5	5.83	1	5	44	2	2	1	3	1	1	1
27.1	Pubis	3	1	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Pubis	3	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Femur	1	1	85	9.44	1	5	44	2	2	1	3	1	1	1
27.1	Femur	1	2	90	11.25	1	5	44	2	2	1	3	1	1	1
27.1	Tibia	1	1	70	1.43	1	5	44	2	2	1	3	1	1	1
27.1	Tibia	1	2	80	0.99	1	5	44	2	2	1	3	1	1	1
27.1	Fibula	1	1	75	12.5	1	5	44	2	2	1	3	1	1	1
27.1	Fibula	1	2	75	2.88	1	5	44	2	2	1	3	1	1	1
27.1	Patella	4	1	70	70	1	5	44	2	2	1	3	1	1	1
27.1	Patella	4	2	25	25	1	5	44	2	2	1	3	1	1	1
27.1	Calcan	4	1	65	65	1	5	44	2	2	1	3	1	1	1
27.1	Calcan	4	2	25	12.5	1	5	44	2	2	1	3	1	1	1
27.1	Talus	4	1	85	85	1	5	44	2	2	1	3	1	1	1
27.1	Talus	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	Tarsals	4	1	13	21.67	1	5	44	2	2	1	3	1	1	1
27.1	Tarsals	4	2	0	•	•	5	44	•	2	1	3	1	1	1
27.1	MT	2	1	46	20.91	1	5	44	2	2	1	3	1	1	1
27.1	MT	2	2	0	•	•	5	44	•	2	1	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
27.1	PP Phal	2	1	0	*	*	5	44	*	2	1	3	1	1	1
27.1	PP Phal	2	2	0	*	*	5	44	*	2	1	3	1	1	1
27.1	PI Phal	2	1	0	*	*	5	44	*	2	1	3	1	1	1
27.1	PI Phal	2	2	0	*	*	5	44	*	2	1	3	1	1	1
27.1	PD Phal	2	1	0	*	*	5	44	*	2	1	3	1	1	1
27.1	PD Phal	2	2	0	*	*	5	44	*	2	1	3	1	1	1
27.2	Pariet	3	1	100	100	1	2	44	2	2	1	3	1	1	1
27.2	Pariet	3	2	100	100	1	2	44	2	2	1	3	1	1	1
27.2	Tempor	3	1	95	95	1	2	44	2	2	1	3	1	1	1
27.2	Tempor	3	2	95	95	1	2	44	2	2	1	3	1	1	1
27.2	Maxilla	4	1	85	28.33	1	2	44	2	2	1	3	1	1	1
27.2	Maxilla	4	2	85	85	1	2	44	2	2	1	3	1	1	1
27.2	Palat	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Palat	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Nasal	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Nasal	4	2	100	100	1	2	44	2	2	1	3	1	1	1
27.2	Lacrim	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Lacrim	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Zygomat	4	1	85	85	1	2	44	2	2	1	3	1	1	1
27.2	Zygomat	4	2	100	100	1	2	44	2	2	1	3	1	1	1
27.2	I Conch	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	I Conch	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Frontal	3	*	85	17	1	2	44	2	2	1	3	1	1	1
27.2	Occipit	3	*	75	1.83	1	2	44	2	2	1	3	1	1	1
27.2	Ethmoid	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Vomer	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Sphen	4	*	75	6.25	1	2	44	2	2	1	3	1	1	1
27.2	Hyoid	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Mand	5	*	90	90	1	2	44	2	2	1	3	1	1	1
27.2	Ribs	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Ribs	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Sternum	3	*	0	*	*	2	44	*	2	1	3	1	1	1
27.2	C Vert	4	*	31.43	12.22	1	2	44	2	2	1	3	1	1	1
27.2	T Vert	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.2	L Vert	4	*	2	1	1	2	44	2	2	1	3	1	1	1
27.2	Sacrum	3	*	10	2	1	2	44	2	2	1	3	1	1	1
27.2	Coccyx	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Clavic	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Clavic	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Scapula	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Scapula	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Humerus	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Humerus	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Radius	1	1	2.5	0.29	1	2	44	2	2	1	3	1	1	1
27.2	Radius	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Ulna	1	1	2.5	0.29	1	2	44	2	2	1	3	1	1	1
27.2	Ulna	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Carpals	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Carpals	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MC	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MC	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MP Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MP Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MI Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MI Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MD Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MD Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Ilium	3	1	25	0.93	1	2	44	2	2	1	3	1	1	1
27.2	Ilium	3	2	20	1.25	1	2	44	2	2	1	3	1	1	1
27.2	Ischium	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Ischium	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Pubis	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Pubis	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Femur	1	1	60	1.58	1	2	44	2	2	1	3	1	1	1
27.2	Femur	1	2	50	0.68	1	2	44	2	2	1	3	1	1	1
27.2	Tibia	1	1	55	5.5	1	2	44	2	2	1	3	1	1	1
27.2	Tibia	1	2	50	3.85	1	2	44	2	2	1	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
27.2	Fibula	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Fibula	1	2	25	8.33	1	2	44	2	2	1	3	1	1	1
27.2	Patella	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Patella	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Calcan	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Calcan	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Talus	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Talus	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Tarsals	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	Tarsals	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MT	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	MT	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	PP Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	PP Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	PI Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	PI Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.2	PD Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.2	PD Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Pariet	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Pariet	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Tempor	3	1	30	15	1	2	44	2	2	1	3	1	1	1
27.3	Tempor	3	2	40	40	1	2	44	2	2	1	3	1	1	1
27.3	Maxilla	4	1	5	0.5	1	2	44	2	2	1	3	1	1	1
27.3	Maxilla	4	2	15	2.5	1	2	44	2	2	1	3	1	1	1
27.3	Palat	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Palat	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Nasal	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Nasal	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Lacrim	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Lacrim	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Zygomat	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Zygomat	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	I Conch	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	I Conch	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Frontal	3	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Occipit	3	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ethmoid	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Vomer	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Sphen	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Hyoid	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Mand	5	*	40	2	1	2	44	2	2	1	3	1	1	1
27.3	Ribs	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ribs	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Sternum	3	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	C Vert	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	T Vert	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	L Vert	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Sacrum	3	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Coccyx	4	*	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Clavic	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Clavic	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Scapula	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Scapula	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Humerus	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Humerus	1	2	40	8	1	2	44	2	2	1	3	1	1	1
27.3	Radius	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Radius	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ulna	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ulna	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Carpals	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Carpals	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MC	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MC	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MP Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MP Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MI Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MI Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
27.3	MD Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MD Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ilium	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ilium	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ischium	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Ischium	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Pubis	3	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Pubis	3	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Femur	1	1	60	20	1	2	44	2	2	1	3	1	1	1
27.3	Femur	1	2	70	70	1	2	44	2	2	1	3	1	1	1
27.3	Tibia	1	1	15	0.56	1	2	44	2	2	1	3	1	1	1
27.3	Tibia	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Fibula	1	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Fibula	1	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Patella	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Patella	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Calcan	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Calcan	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Talus	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Talus	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Tarsals	4	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	Tarsals	4	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MT	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	MT	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	PP Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	PP Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	PI Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	PI Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
27.3	PD Phal	2	1	0	*	*	2	44	*	2	1	3	1	1	1
27.3	PD Phal	2	2	0	*	*	2	44	*	2	1	3	1	1	1
28	Pariet	3	1	65	3.42	2	7	48	1	1	*	1	1	1	2
28	Pariet	3	2	50	3.13	2	7	48	1	1	*	1	1	1	2
28	Tempor	3	1	35	5.83	2	7	48	1	1	*	1	1	1	2
28	Tempor	3	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Maxilla	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Maxilla	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Palat	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Palat	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Nasal	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Nasal	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Lacrim	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Lacrim	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Zygomat	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Zygomat	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	I Conch	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	I Conch	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Frontal	3	*	60	2.61	2	7	48	1	1	*	1	1	1	2
28	Occipit	3	*	40	2.67	2	7	48	1	1	*	1	1	1	2
28	Ethmoid	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Vomer	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Sphen	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Hyoid	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Mand	5	*	35	0.66	2	7	48	1	1	*	1	1	1	2
28	Ribs	3	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Ribs	3	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Sternum	3	*	0	*	*	7	48	*	1	*	1	1	1	2
28	C Vert	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	T Vert	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	L Vert	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Sacrum	3	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Coccyx	4	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Clavic	1	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Clavic	1	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Scapula	3	1	35	5.83	2	7	48	2	1	*	1	1	1	2
28	Scapula	3	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Humerus	1	1	75	75	2	7	48	2	1	*	1	1	1	2
28	Humerus	1	2	40	5	2	7	48	1	1	*	1	1	1	2

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
28	Radius	1	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Radius	1	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Ulna	1	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Ulna	1	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Carpals	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Carpals	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	MC	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	MC	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	MP Phal	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	MP Phal	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	MI Phal	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	MI Phal	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	MD Phal	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	MD Phal	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Ilium	3	1	20	2.22	2	7	48	2	1	*	1	1	1	2
28	Ilium	3	2	95	23.75	2	7	48	2	1	*	1	1	1	2
28	Ischium	3	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Ischium	3	2	42	10.5	2	7	48	2	1	*	1	1	1	2
28	Pubis	3	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Pubis	3	2	50	12.5	2	7	48	2	1	*	1	1	1	2
28	Femur	1	1	45	0.92	2	7	48	1	1	*	1	1	1	2
28	Femur	1	2	70	5.83	2	7	48	2	1	*	1	1	1	2
28	Tibia	1	1	20	0.65	2	7	48	1	1	*	1	1	1	2
28	Tibia	1	2	5	0.16	2	7	48	1	1	*	1	1	1	2
28	Fibula	1	*	85	42.5	2	7	48	2	1	*	1	1	1	2
28	Fibula	1	*	0	*	*	7	48	*	1	*	1	1	1	2
28	Patella	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Patella	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Calcan	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Calcan	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Talus	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Talus	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	Tarsals	4	1	0	*	*	7	48	*	1	*	1	1	1	2
28	Tarsals	4	2	0	*	*	7	48	*	1	*	1	1	1	2
28	MT	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	MT	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	PP Phal	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	PP Phal	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	PI Phal	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	PI Phal	2	2	0	*	*	7	48	*	1	*	1	1	1	2
28	PD Phal	2	1	0	*	*	7	48	*	1	*	1	1	1	2
28	PD Phal	2	2	0	*	*	7	48	*	1	*	1	1	1	2
29	Pariet	3	1	0	*	*	6	40	*	1	1	1	1	1	1
29	Pariet	3	2	0	*	*	6	40	*	1	1	1	1	1	1
29	Tempor	3	1	10	10	1	6	40	1	1	1	1	1	1	1
29	Tempor	3	2	75	4.69	1	6	40	1	1	1	1	1	1	1
29	Maxilla	4	1	0	*	*	6	40	*	1	1	1	1	1	1
29	Maxilla	4	*	15	5	1	6	40	1	1	1	1	1	1	1
29	Maxilla	4	2	15	7.5	1	6	40	1	1	1	1	1	1	1
29	Palat	4	1	0	*	*	6	40	*	1	1	1	1	1	1
29	Palat	4	2	0	*	*	6	40	*	1	1	1	1	1	1
29	Nasal	4	1	0	*	*	6	40	*	1	1	1	1	1	1
29	Nasal	4	2	0	*	*	6	40	*	1	1	1	1	1	1
29	Lacrim	4	1	0	*	*	6	40	*	1	1	1	1	1	1
29	Lacrim	4	2	0	*	*	6	40	*	1	1	1	1	1	1
29	Zygomat	4	1	0	*	*	6	40	*	1	1	1	1	1	1
29	Zygomat	4	2	0	*	*	6	40	*	1	1	1	1	1	1
29	I Conch	4	1	0	*	*	6	40	*	1	1	1	1	1	1
29	I Conch	4	2	0	*	*	6	40	*	1	1	1	1	1	1
29	Frontal	3	*	90	2.73	1	6	40	1	1	1	1	1	1	1
29	Occipit	3	*	0	*	*	6	40	*	1	1	1	1	1	1
29	Ethmoid	4	*	0	*	*	6	40	*	1	1	1	1	1	1
29	Vomer	4	*	0	*	*	6	40	*	1	1	1	1	1	1
29	Sphen	4	*	0	*	*	6	40	*	1	1	1	1	1	1
29	Hyoid	4	*	0	*	*	6	40	*	1	1	1	1	1	1
29	Mand	5	*	85	4.47	1	6	40	1	1	1	1	1	1	1
29	Ribs	3	1	0	*	*	6	40	*	1	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
29	Ribs	3	2	0	•	•	6	40	•	1	1	1	1	1	1
29	Sternum	3	•	0	•	•	6	40	•	1	1	1	1	1	1
29	C Vert	4	•	10	11.67	1	6	40	1	1	1	1	1	1	1
29	T Vert	4	•	0	•	•	6	40	•	1	1	1	1	1	1
29	L Vert	4	•	61.8	34.33	1	6	40	2	1	1	1	1	1	1
29	Sacrum	3	•	95	1.98	1	6	40	2	1	1	1	1	1	1
29	Coccyx	4	•	75	75	1	6	40	2	1	1	1	1	1	1
29	Clavic	1	1	70	14	1	6	40	2	1	1	1	1	1	1
29	Clavic	1	2	65	32.5	1	6	40	1	1	1	1	1	1	1
29	Scapula	3	1	45	1.61	1	6	40	2	1	1	1	1	1	1
29	Scapula	3	2	40	1.18	1	6	40	2	1	1	1	1	1	1
29	Humerus	1	1	90	22.5	1	6	40	2	1	1	1	1	1	1
29	Humerus	1	2	85	2.74	1	6	40	1	1	1	1	1	1	1
29	Radius	1	1	100	100	1	6	40	2	1	1	1	1	1	1
29	Radius	1	2	100	100	1	6	40	2	1	1	1	1	1	1
29	Ulna	1	1	95	47.5	1	6	40	2	1	1	1	1	1	1
29	Ulna	1	2	90	22.5	1	6	40	2	1	1	1	1	1	1
29	Carpals	4	1	65	74.29	1	6	40	2	1	1	1	1	1	1
29	Carpals	4	2	96.88	96.88	1	6	40	2	1	1	1	1	1	1
29	MC	2	1	91	50.56	1	6	40	2	1	1	1	1	1	1
29	MC	2	2	100	100	1	6	40	2	1	1	1	1	1	1
29	MP Phal	2	1	20	100	2	6	40	2	1	1	1	1	1	1
29	MP Phal	2	•	20	100	2	6	40	2	1	1	1	1	1	1
29	MP Phal	2	2	0	•	•	6	40	•	1	1	1	1	1	1
29	MI Phal	2	1	100	100	2	6	40	2	1	1	1	1	1	1
29	MI Phal	2	•	25	100	2	6	40	2	1	1	1	1	1	1
29	MI Phal	2	2	0	•	•	6	40	•	1	1	1	1	1	1
29	MD Phal	2	1	40	100	2	6	40	2	1	1	1	1	1	1
29	MD Phal	2	•	20	100	2	6	40	2	1	1	1	1	1	1
29	MD Phal	2	2	0	•	•	6	40	•	1	1	1	1	1	1
29	Ilium	3	1	98	4.45	1	6	40	2	1	1	1	1	1	1
29	Ilium	3	2	80	6.15	1	6	40	2	1	1	1	1	1	1
29	Ischium	3	1	52	2.48	1	6	40	2	1	1	1	1	1	1
29	Ischium	3	2	50	3.85	1	6	40	2	1	1	1	1	1	1
29	Pubis	3	1	52	2.48	1	6	40	2	1	1	1	1	1	1
29	Pubis	3	2	75	5.77	1	6	40	2	1	1	1	1	1	1
29	Femur	1	1	95	5	1	6	40	2	1	1	1	1	1	1
29	Femur	1	2	98	8.1667	1	6	40	2	1	1	1	1	1	1
29	Tibia	1	1	80	80	1	6	40	2	1	1	1	1	1	1
29	Tibia	1	2	95	7.3077	1	6	40	2	1	1	1	1	1	1
29	Fibula	1	1	75	37.5	1	6	40	2	1	1	1	1	1	1
29	Fibula	1	2	90	12.857	1	6	40	2	1	1	1	1	1	1
29	Patella	4	1	90	90	1	6	40	2	1	1	1	1	1	1
29	Patella	4	2	100	100	1	6	40	2	1	1	1	1	1	1
29	Calcan	4	1	95	95	1	6	40	2	1	1	1	1	1	1
29	Calcan	4	2	95	95	1	6	40	2	1	1	1	1	1	1
29	Talus	4	1	0	•	•	6	40	•	1	1	1	1	1	1
29	Talus	4	2	65	65	1	6	40	2	1	1	1	1	1	1
29	Tarsals	4	1	99	99	1	6	40	2	1	1	1	1	1	1
29	Tarsals	4	2	43	53.75	1	6	40	2	1	1	1	1	1	1
29	MT	2	1	100	71.429	1	6	40	2	1	1	1	1	1	1
29	MT	2	2	99.2	99.2	1	6	40	2	1	1	1	1	1	1
29	PP Phal	2	•	70	100	2	6	40	2	1	1	1	1	1	1
29	PI Phal	2	•	25	100	2	6	40	2	1	1	1	1	1	1
29	PD Phal	2	•	40	100	2	6	40	2	1	1	1	1	1	1
30	Pariet	3	1	0	•	•	•	48	•	2	•	•	•	2	•
30	Pariet	3	2	0	•	•	•	48	•	2	•	•	•	2	•
30	Tempor	3	1	0	•	•	•	48	•	2	•	•	•	2	•
30	Tempor	3	2	0	•	•	•	48	•	2	•	•	•	2	•
30	Maxilla	4	1	0	•	•	•	48	•	2	•	•	•	2	•
30	Maxilla	4	2	0	•	•	•	48	•	2	•	•	•	2	•
30	Palat	4	1	0	•	•	•	48	•	2	•	•	•	2	•
30	Palat	4	2	0	•	•	•	48	•	2	•	•	•	2	•
30	Nasal	4	1	0	•	•	•	48	•	2	•	•	•	2	•
30	Nasal	4	2	0	•	•	•	48	•	2	•	•	•	2	•
30	Lacrim	4	1	0	•	•	•	48	•	2	•	•	•	2	•
30	Lacrim	4	2	0	•	•	•	48	•	2	•	•	•	2	•

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
30	Zygomat	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Zygomat	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	I Conch	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	I Conch	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Frontal	3	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Occipit	3	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Ethmoid	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Vomer	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Sphen	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Hyoid	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Mand	5	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Ribs	3	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Ribs	3	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Sternum	3	*	0	*	*	*	48	*	2	*	*	*	2	*
30	C Vert	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	T Vert	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	L Vert	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Sacrum	3	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Coccyx	4	*	0	*	*	*	48	*	2	*	*	*	2	*
30	Clavic	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Clavic	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Scapula	3	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Scapula	3	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Humerus	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Humerus	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Radius	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Radius	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Ulna	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Ulna	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Carpals	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Carpals	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	MC	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	MC	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	MP Phal	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	MP Phal	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	MI Phal	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	MI Phal	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	MD Phal	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	MD Phal	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Ilium	3	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Ilium	3	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Ischium	3	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Ischium	3	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Pubis	3	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Pubis	3	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Femur	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Femur	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Tibia	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Tibia	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Fibula	1	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Fibula	1	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Patella	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Patella	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Calcan	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Calcan	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Talus	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Talus	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	Tarsals	4	1	0	*	*	*	48	*	2	*	*	*	2	*
30	Tarsals	4	2	0	*	*	*	48	*	2	*	*	*	2	*
30	MT	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	MT	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	PP Phal	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	PP Phal	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	PI Phal	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	PI Phal	2	2	0	*	*	*	48	*	2	*	*	*	2	*
30	PD Phal	2	1	0	*	*	*	48	*	2	*	*	*	2	*
30	PD Phal	2	2	0	*	*	*	48	*	2	*	*	*	2	*

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
31	Pariet	3	1	35	35	2	7	86	2	2	*	1	1	2	1
31	Pariet	3	2	60	30	2	7	86	2	2	*	1	1	2	1
31	Tempor	3	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Tempor	3	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Maxilla	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Maxilla	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Palat	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Palat	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Nasal	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Nasal	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Lacrim	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Lacrim	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Zygomat	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Zygomat	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	I Conch	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	I Conch	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Frontal	3	*	40	20	2	7	86	2	2	*	1	1	2	1
31	Occipit	3	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Ethmoid	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Vomer	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Sphen	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Hyoid	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Mand	5	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Ribs	3	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Ribs	3	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Sternum	3	*	0	*	*	7	86	*	2	*	1	1	2	1
31	C Vert	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	T Vert	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	L Vert	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Sacrum	3	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Coccyx	4	*	0	*	*	7	86	*	2	*	1	1	2	1
31	Clavic	1	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Clavic	1	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Scapula	3	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Scapula	3	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Humerus	1	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Humerus	1	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Radius	1	*	45	1.8	2	7	86	2	2	*	1	1	2	1
31	Radius	1	*	70	70	2	7	86	2	2	*	1	1	2	1
31	Ulna	1	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Ulna	1	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Carpals	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Carpals	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	MC	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	MC	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	MP Phal	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	MP Phal	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	MI Phal	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	MI Phal	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	MD Phal	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	MD Phal	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Ilium	3	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Ilium	3	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Ischium	3	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Ischium	3	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Pubis	3	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Pubis	3	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Femur	1	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Femur	1	2	70	1.94	2	7	86	2	2	*	1	1	2	1
31	Tibia	1	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Tibia	1	2	70	1.52	2	7	86	2	2	*	1	1	2	1
31	Fibula	1	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Fibula	1	2	60	1.15	2	7	86	2	2	*	1	1	2	1
31	Patella	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Patella	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Calcan	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Calcan	4	2	0	*	*	7	86	*	2	*	1	1	2	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
31	Talus	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Talus	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	Tarsals	4	1	0	*	*	7	86	*	2	*	1	1	2	1
31	Tarsals	4	2	0	*	*	7	86	*	2	*	1	1	2	1
31	MT	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	MT	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	PP Phal	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	PP Phal	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	PI Phal	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	PI Phal	2	2	0	*	*	7	86	*	2	*	1	1	2	1
31	PD Phal	2	1	0	*	*	7	86	*	2	*	1	1	2	1
31	PD Phal	2	2	0	*	*	7	86	*	2	*	1	1	2	1
32	Pariet	3	1	100	100	1	6	38	2	2	1	1	1	1	1
32	Pariet	3	2	95	31.67	1	6	38	2	2	1	1	1	1	1
32	Tempor	3	1	95	47.5	1	6	38	2	2	1	1	1	1	1
32	Tempor	3	2	70	11.67	1	6	38	2	2	1	1	1	1	1
32	Maxilla	4	1	12.5	12.5	1	6	38	2	2	1	1	1	1	1
32	Maxilla	4	2	12.5	12.5	1	6	38	2	2	1	1	1	1	1
32	Palat	4	1	0	*	*	6	38	*	2	1	1	1	1	1
32	Palat	4	2	0	*	*	6	38	*	2	1	1	1	1	1
32	Nasal	4	1	0	*	*	6	38	*	2	1	1	1	1	1
32	Nasal	4	2	0	*	*	6	38	*	2	1	1	1	1	1
32	Lacrim	4	1	0	*	*	6	38	*	2	1	1	1	1	1
32	Lacrim	4	2	0	*	*	6	38	*	2	1	1	1	1	1
32	Zygomat	4	1	100	100	1	6	38	2	2	1	1	1	1	1
32	Zygomat	4	2	95	31.67	1	6	38	2	2	1	1	1	1	1
32	I Conch	4	1	0	*	*	6	38	*	2	1	1	1	1	1
32	I Conch	4	2	0	*	*	6	38	*	2	1	1	1	1	1
32	Frontal	3	*	85	85	1	6	38	2	2	1	1	1	1	1
32	Occipit	3	*	75	12.5	1	6	38	2	2	1	1	1	1	1
32	Ethmoid	4	*	0	*	*	6	38	*	2	1	1	1	1	1
32	Vomer	4	*	0	*	*	6	38	*	2	1	1	1	1	1
32	Sphen	4	*	20	3.33	1	6	38	2	2	1	1	1	1	1
32	Hyoid	4	*	0	*	*	6	38	*	2	1	1	1	1	1
32	Mand	5	*	80	20	1	6	38	2	2	1	1	1	1	1
32	Ribs	3	1	0	*	*	6	38	*	2	1	1	1	1	1
32	Ribs	3	2	35	35	1	6	38	2	2	1	1	1	1	1
32	Sternum	3	*	0	*	*	6	38	*	2	1	1	1	1	1
32	C Vert	4	*	17.14	13.33	1	6	38	2	2	1	1	1	1	1
32	T Vert	4	*	0	*	*	6	38	*	2	1	1	1	1	1
32	L Vert	4	*	11	5.5	1	6	38	2	2	1	1	1	1	1
32	Sacrum	3	*	5	0.5	1	6	38	*	2	1	1	1	1	1
32	Coccyx	4	*	0	*	*	6	38	*	2	1	1	1	1	1
32	Clavic	1	1	80	26.67	1	6	38	2	2	1	1	1	1	1
32	Clavic	1	2	75	37.5	1	6	38	2	2	1	1	1	1	1
32	Scapula	3	1	20	0.59	1	6	38	2	2	1	1	1	1	1
32	Scapula	3	2	30	1.25	1	6	38	2	2	1	1	1	1	1
32	Humerus	1	1	75	2.08	1	6	38	2	2	1	1	1	1	1
32	Humerus	1	2	60	1.3	1	6	38	2	2	1	1	1	1	1
32	Radius	1	1	50	2.17	1	6	38	2	2	1	1	1	1	1
32	Radius	1	2	5	0.13	1	6	38	2	2	1	1	1	1	1
32	Ulna	1	1	60	3	1	6	38	2	2	1	1	1	1	1
32	Ulna	1	2	30	2	1	6	38	2	2	1	1	1	1	1
32	Carpals	4	1	23.13	46.25	1	6	38	2	2	1	1	1	1	1
32	Carpals	4	2	0	*	*	6	38	*	2	1	1	1	1	1
32	MC	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	MC	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	MP Phal	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	MP Phal	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	MI Phal	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	MI Phal	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	MD Phal	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	MD Phal	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	Ilium	3	1	95	9.5	1	6	38	2	2	1	1	1	1	1
32	Ilium	3	2	65	10.83	1	6	38	2	2	1	1	1	1	1
32	Ischium	3	1	42	4.2	1	6	38	2	2	1	1	1	1	1
32	Ischium	3	2	25	4.17	1	6	38	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
32	Pubis	3	1	0	*	*	6	38	*	2	1	1	1	1	1
32	Pubis	3	2	0	*	*	6	38	*	2	1	1	1	1	1
32	Femur	1	1	85	0.5	1	6	38	2	2	1	1	1	1	1
32	Femur	1	2	85	0.94	1	6	38	2	2	1	1	1	1	1
32	Tibia	1	1	85	0.71	1	6	38	2	2	1	1	1	1	1
32	Tibia	1	2	75	1.29	1	6	38	2	2	1	1	1	1	1
32	Fibula	1	1	90	2.57	1	6	38	2	2	1	1	1	1	1
32	Fibula	1	2	70	5.38	1	6	38	2	2	1	1	1	1	1
32	Patella	4	1	0	*	*	6	38	*	2	1	1	1	1	1
32	Patella	4	2	20	20	1	6	38	2	2	1	1	1	1	1
32	Calcan	4	1	35	5.83	1	6	38	2	2	1	1	1	1	1
32	Calcan	4	2	15	15	1	6	38	2	2	1	1	1	1	1
32	Talus	4	1	90	90	1	6	38	2	2	1	1	1	1	1
32	Talus	4	2	80	20	1	6	38	2	2	1	1	1	1	1
32	Tarsals	4	1	44	18.33	1	6	38	2	2	1	1	1	1	1
32	Tarsals	4	2	0	*	*	6	38	*	2	1	1	1	1	1
32	MT	2	1	27	45	1	6	38	2	2	1	1	1	1	1
32	MT	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	PP Phal	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	PP Phal	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	PI Phal	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	PI Phal	2	2	0	*	*	6	38	*	2	1	1	1	1	1
32	PD Phal	2	1	0	*	*	6	38	*	2	1	1	1	1	1
32	PD Phal	2	2	0	*	*	6	38	*	2	1	1	1	1	1
33	Pariet	3	1	60	2.61	1	2	44	2	2	1	1	1	1	1
33	Pariet	3	2	70	3.68	1	2	44	2	2	1	1	1	1	1
33	Tempor	3	1	25	25	1	2	44	2	2	1	1	1	1	1
33	Tempor	3	2	15	7.5	1	2	44	2	2	1	1	1	1	1
33	Maxilla	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Maxilla	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Palat	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Palat	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Nasal	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Nasal	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Lacrim	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Lacrim	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Zygomat	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Zygomat	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	I Conch	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	I Conch	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Frontal	3	*	70	2.8	1	2	44	2	2	1	1	1	1	1
33	Occipit	3	*	35	1.25	1	2	44	2	2	1	1	1	1	1
33	Ethmoid	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Vomer	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Sphen	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Hyoid	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Mand	5	*	40	2.5	1	2	44	2	2	1	1	1	1	1
33	Ribs	3	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Ribs	3	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Sternum	3	*	0	*	*	2	44	*	2	1	1	1	1	1
33	C Vert	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	T Vert	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	L Vert	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Sacrum	3	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Coccyx	4	*	0	*	*	2	44	*	2	1	1	1	1	1
33	Clavic	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Clavic	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Scapula	3	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Scapula	3	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Humerus	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Humerus	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Radius	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Radius	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Ulna	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Ulna	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Carpals	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Carpals	4	2	0	*	*	2	44	*	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
33	MC	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	MC	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	MP Phal	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	MP Phal	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	MI Phal	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	MI Phal	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	MD Phal	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	MD Phal	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Ilium	3	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Ilium	3	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Ischium	3	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Ischium	3	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Pubis	3	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Pubis	3	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Femur	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Femur	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Tibia	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Tibia	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Fibula	1	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Fibula	1	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Patella	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Patella	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Calcan	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Calcan	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Talus	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Talus	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	Tarsals	4	1	0	*	*	2	44	*	2	1	1	1	1	1
33	Tarsals	4	2	0	*	*	2	44	*	2	1	1	1	1	1
33	MT	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	MT	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	PP Phal	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	PP Phal	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	PI Phal	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	PI Phal	2	2	0	*	*	2	44	*	2	1	1	1	1	1
33	PD Phal	2	1	0	*	*	2	44	*	2	1	1	1	1	1
33	PD Phal	2	2	0	*	*	2	44	*	2	1	1	1	1	1
34	Pariet	3	1	95	23.75	1	4	46	2	1	2	1	1	1	1
34	Pariet	3	2	100	100	1	4	46	2	1	2	1	1	1	1
34	Tempor	3	1	80	80	1	4	46	2	1	2	1	1	1	1
34	Tempor	3	2	95	95	1	4	46	2	1	2	1	1	1	1
34	Maxilla	4	1	100	100	1	4	46	2	1	2	1	1	1	1
34	Maxilla	4	2	65	32.5	1	4	46	2	1	2	1	1	1	1
34	Palat	4	1	0	*	*	4	46	*	1	2	1	1	1	1
34	Palat	4	2	0	*	*	4	46	*	1	2	1	1	1	1
34	Nasal	4	1	0	*	*	4	46	*	1	2	1	1	1	1
34	Nasal	4	2	0	*	*	4	46	*	1	2	1	1	1	1
34	Lacrim	4	1	0	*	*	4	46	*	1	2	1	1	1	1
34	Lacrim	4	2	0	*	*	4	46	*	1	2	1	1	1	1
34	Zygomat	4	1	0	*	*	4	46	*	1	2	1	1	1	1
34	Zygomat	4	2	0	*	*	4	46	*	1	2	1	1	1	1
34	I Conch	4	1	0	*	*	4	46	*	1	2	1	1	1	1
34	I Conch	4	2	0	*	*	4	46	*	1	2	1	1	1	1
34	Frontal	3	*	90	90	1	4	46	2	1	2	1	1	1	1
34	Occipit	3	*	70	10	1	4	46	2	1	2	1	1	1	1
34	Ethmoid	4	*	0	*	*	4	46	*	1	2	1	1	1	1
34	Vomer	4	*	0	*	*	4	46	*	1	2	1	1	1	1
34	Sphen	4	*	25	25	1	4	46	2	1	2	1	1	1	1
34	Hyoid	4	*	0	*	*	4	46	*	1	2	1	1	1	1
34	Mand	5	*	90	2.09	1	4	46	2	1	2	1	1	1	1
34	Ribs	3	1	0	*	*	4	46	*	1	2	1	1	1	1
34	Ribs	3	2	0	*	*	4	46	*	1	2	1	1	1	1
34	Sternum	3	*	0	*	*	4	46	*	1	2	1	1	1	1
34	C Vert	4	*	5.71	10	1	4	46	2	1	2	1	1	1	1
34	T Vert	4	*	0	*	*	4	46	*	1	2	1	1	1	1
34	L Vert	4	*	9.5	47.5	1	4	46	2	1	2	1	1	1	1
34	Sacrum	3	*	0	*	*	4	46	*	1	2	1	1	1	1
34	Coccyx	4	*	0	*	*	4	46	*	1	2	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
34	Clavic	1	1	60	1.5	1	4	46	2	1	2	1	1	1	1
34	Clavic	1	2	40	10	1	4	46	2	1	2	1	1	1	1
34	Scapula	3	1	5	0.42	1	4	46	2	1	2	1	1	1	1
34	Scapula	3	2	25	0.96	1	4	46	2	1	2	1	1	1	1
34	Humerus	1	1	45	0.41	1	4	46	2	1	2	1	1	1	1
34	Humerus	1	2	70	3.5	1	4	46	2	1	2	1	1	1	1
34	Radius	1	1	60	8.57	1	4	46	2	1	2	1	1	1	1
34	Radius	1	2	0	•	•	4	46	•	1	2	1	1	1	1
34	Ulna	1	1	65	2.6	1	4	46	2	1	2	1	1	1	1
34	Ulna	1	2	45	1.875	1	4	46	2	1	2	1	1	1	1
34	Carpals	4	1	0	•	•	4	46	•	1	2	1	1	1	1
34	Carpals	4	2	20.63	82.5	1	4	46	2	1	2	1	1	1	1
34	MC	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	MC	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	MP Phal	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	MP Phal	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	MI Phal	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	MI Phal	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	MD Phal	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	MD Phal	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	Ilium	3	1	85	6.54	1	4	46	2	1	2	1	1	1	1
34	Ilium	3	2	90	6	1	4	46	2	1	2	1	1	1	1
34	Ischium	3	1	20	1.67	1	4	46	2	1	2	1	1	1	1
34	Ischium	3	2	10	0.77	1	4	46	2	1	2	1	1	1	1
34	Pubis	3	1	83	6.38	1	4	46	2	1	2	1	1	1	1
34	Pubis	3	2	10	0.77	1	4	46	2	1	2	1	1	1	1
34	Femur	1	1	90	1.36	1	4	46	2	1	2	1	1	1	1
34	Femur	1	2	75	3.13	1	4	46	2	1	2	1	1	1	1
34	Tibia	1	1	85	1.2	1	4	46	2	1	2	1	1	1	1
34	Tibia	1	2	75	2.78	1	4	46	2	1	2	1	1	1	1
34	Fibula	1	1	60	2.5	1	4	46	2	1	2	1	1	1	1
34	Fibula	1	2	15	0.58	1	4	46	2	1	2	1	1	1	1
34	Patella	4	1	90	90	1	4	46	2	1	2	1	1	1	1
34	Patella	4	2	65	65	1	4	46	1	1	2	1	1	1	1
34	Calcan	4	1	55	55	1	4	46	2	1	2	1	1	1	1
34	Calcan	4	2	0	•	•	4	46	•	1	2	1	1	1	1
34	Talus	4	1	85	85	1	4	46	2	1	2	1	1	1	1
34	Talus	4	2	80	40	1	4	46	2	1	2	1	1	1	1
34	Tarsals	4	1	77	77	1	4	46	2	1	2	1	1	1	1
34	Tarsals	4	2	0	•	•	4	46	•	1	2	1	1	1	1
34	MT	2	1	65	32.5	1	4	46	2	1	2	1	1	1	1
34	MT	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	PP Phal	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	PP Phal	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	PI Phal	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	PI Phal	2	2	0	•	•	4	46	•	1	2	1	1	1	1
34	PD Phal	2	1	0	•	•	4	46	•	1	2	1	1	1	1
34	PD Phal	2	2	0	•	•	4	46	•	1	2	1	1	1	1
35.1	Pariet	3	1	85	3.86	1	3	42	2	2	1	2	1	1	1
35.1	Pariet	3	2	55	3.67	1	3	42	2	2	1	2	1	1	1
35.1	Tempor	3	1	60	7.5	1	3	42	2	2	1	2	1	1	1
35.1	Tempor	3	2	65	3.42	1	3	42	2	2	1	2	1	1	1
35.1	Maxilla	4	1	55	2.5	1	3	42	2	2	1	2	1	1	1
35.1	Maxilla	4	2	70	5.83	1	3	42	2	2	1	2	1	1	1
35.1	Palat	4	1	40	40	1	3	42	2	2	1	2	1	1	1
35.1	Palat	4	2	0	•	•	3	42	•	2	1	2	1	1	1
35.1	Nasal	4	1	50	25	1	3	42	2	2	1	2	1	1	1
35.1	Nasal	4	2	90	90	1	3	42	2	2	1	2	1	1	1
35.1	Lacrim	4	1	0	•	•	3	42	•	2	1	2	1	1	1
35.1	Lacrim	4	2	0	•	•	3	42	•	2	1	2	1	1	1
35.1	Zygomat	4	1	0	•	•	3	42	•	2	1	2	1	1	1
35.1	Zygomat	4	2	60	20	1	3	42	2	2	1	2	1	1	1
35.1	I Conch	4	1	0	•	•	3	42	•	2	1	2	1	1	1
35.1	I Conch	4	2	0	•	•	3	42	•	2	1	2	1	1	1
35.1	Frontal	3	•	80	2.16	1	3	42	2	2	1	2	1	1	1
35.1	Occipit	3	•	60	0.91	1	3	42	2	2	1	2	1	1	1
35.1	Ethmoid	4	•	0	•	•	3	42	•	2	1	2	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
35.1	Vomer	4	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Sphen	4	*	15	15	1	3	42	2	2	1	2	1	1	1
35.1	Hyoid	4	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Mand	5	*	80	1.29	1	3	42	2	2	1	2	1	1	1
35.1	Ribs	3	1	4.17	50	1	3	42	2	2	1	2	1	1	1
35.1	Ribs	3	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Sternum	3	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	C Vert	4	*	10.71	18.75	1	3	42	2	2	1	2	1	1	1
35.1	T Vert	4	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	L Vert	4	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Sacrum	3	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Coccyx	4	*	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Clavic	1	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Clavic	1	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Scapula	3	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Scapula	3	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Humerus	1	1	80	5.33	1	3	42	2	2	1	2	1	1	1
35.1	Humerus	1	2	40	1.33	1	3	42	2	2	1	2	1	1	1
35.1	Radius	1	1	40	2.22	1	3	42	2	2	1	2	1	1	1
35.1	Radius	1	2	20	4	1	3	42	2	2	1	2	1	1	1
35.1	Ulna	1	1	55	11	1	3	42	2	2	1	2	1	1	1
35.1	Ulna	1	2	50	1.47	1	3	42	2	2	1	2	1	1	1
35.1	Carpals	4	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Carpals	4	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MC	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MC	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MP Phal	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MP Phal	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MI Phal	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MI Phal	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MD Phal	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MD Phal	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Ilium	3	1	80	4	1	3	42	2	2	1	2	1	1	1
35.1	Ilium	3	2	20	0.3	1	3	42	2	2	1	2	1	1	1
35.1	Ischium	3	1	10	0.53	1	3	42	2	2	1	2	1	1	1
35.1	Ischium	3	2	20	0.3	1	3	42	2	2	1	2	1	1	1
35.1	Pubis	3	1	10	0.53	1	3	42	2	2	1	2	1	1	1
35.1	Pubis	3	2	20	0.3	1	3	42	2	2	1	2	1	1	1
35.1	Femur	1	1	85	1.02	1	3	42	2	2	1	2	1	1	1
35.1	Femur	1	2	75	0.34	1	3	42	2	2	1	2	1	1	1
35.1	Tibia	1	1	75	0.77	1	3	42	2	2	1	2	1	1	1
35.1	Tibia	1	2	65	1.41	1	3	42	2	2	1	2	1	1	1
35.1	Fibula	1	1	30	0.48	1	3	42	2	2	1	2	1	1	1
35.1	Fibula	1	2	60	2.14	1	3	42	2	2	1	2	1	1	1
35.1	Patella	4	1	60	20	1	3	42	2	2	1	2	1	1	1
35.1	Patella	4	2	10	5	1	3	42	2	2	1	2	1	1	1
35.1	Calcan	4	1	25	2.5	1	3	42	2	2	1	2	1	1	1
35.1	Calcan	4	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Talus	4	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Talus	4	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Tarsals	4	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	Tarsals	4	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MT	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	MT	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	PP Phal	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	PP Phal	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	PI Phal	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	PI Phal	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.1	PD Phal	2	1	0	*	*	3	42	*	2	1	2	1	1	1
35.1	PD Phal	2	2	0	*	*	3	42	*	2	1	2	1	1	1
35.2	Pariet	3	1	80	1.36	1	2	42	2	2	1	2	1	1	1
35.2	Pariet	3	2	40	0.93	1	2	42	2	2	1	2	1	1	1
35.2	Tempor	3	1	40	3.33	1	2	42	2	2	1	2	1	1	1
35.2	Tempor	3	2	60	1.71	1	2	42	2	2	1	2	1	1	1
35.2	Maxilla	4	1	25	1.09	1	2	42	2	2	1	2	1	1	1
35.2	Maxilla	4	2	25	1.09	1	2	42	2	2	1	2	1	1	1
35.2	Palat	4	1	0	*	*	2	42	*	2	1	2	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
35.2	Palat	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Nasal	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Nasal	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Lacrim	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Lacrim	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Zygomat	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Zygomat	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	I Conch	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	I Conch	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Frontal	3	*	70	7	1	2	42	2	2	1	2	1	1	1
35.2	Occipit	3	*	50	0.66	1	2	42	2	2	1	2	1	1	1
35.2	Ethmoid	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Vomer	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Sphen	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Hyoid	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Mand	5	*	70	1.84	1	2	42	2	2	1	2	1	1	1
35.2	Ribs	3	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Ribs	3	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Sternum	3	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	C Vert	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	T Vert	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	L Vert	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Sacrum	3	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Coccyx	4	*	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Clavic	1	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Clavic	1	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Scapula	3	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Scapula	3	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Humerus	1	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Humerus	1	2	5	0.05	1	2	42	2	2	1	2	1	1	1
35.2	Radius	1	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Radius	1	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Ulna	1	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Ulna	1	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Carpals	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Carpals	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MC	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MC	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MP Phal	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MP Phal	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MI Phal	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MI Phal	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MD Phal	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MD Phal	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Ilium	3	1	20	1.43	1	2	42	2	2	1	2	1	1	1
35.2	Ilium	3	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Ischium	3	1	20	1.43	1	2	42	2	2	1	2	1	1	1
35.2	Ischium	3	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Pubis	3	1	20	1.43	1	2	42	2	2	1	2	1	1	1
35.2	Pubis	3	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Femur	1	1	60	0.75	1	2	42	2	2	1	2	1	1	1
35.2	Femur	1	2	40	0.31	1	2	42	2	2	1	2	1	1	1
35.2	Tibia	1	1	15	0.17	1	2	42	2	2	1	2	1	1	1
35.2	Tibia	1	2	5	0.26	1	2	42	2	2	1	2	1	1	1
35.2	Fibula	1	1	5	1.67	1	2	42	2	2	1	2	1	1	1
35.2	Fibula	1	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Patella	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Patella	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Calcan	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Calcan	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Talus	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Talus	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Tarsals	4	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	Tarsals	4	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MT	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	MT	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	PP Phal	2	1	0	*	*	2	42	*	2	1	2	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
35.2	PP Phal	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	PI Phal	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	PI Phal	2	2	0	*	*	2	42	*	2	1	2	1	1	1
35.2	PD Phal	2	1	0	*	*	2	42	*	2	1	2	1	1	1
35.2	PD Phal	2	2	0	*	*	2	42	*	2	1	2	1	1	1
36.1	Pariet	3	1	95	19	2	5	40	2	2	*	2	1	1	2
36.1	Pariet	3	2	100	100	2	5	40	2	2	*	2	1	1	2
36.1	Tempor	3	1	65	65	2	5	40	2	2	*	2	1	1	2
36.1	Tempor	3	*	5	5	2	5	40	2	2	*	2	1	1	2
36.1	Tempor	3	2	95	95	2	5	40	2	2	*	2	1	1	2
36.1	Maxilla	4	1	10	3.33	2	5	40	2	2	*	2	1	1	2
36.1	Maxilla	4	2	70	70	2	5	40	2	2	*	2	1	1	2
36.1	Palat	4	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Palat	4	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Nasal	4	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Nasal	4	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Lacrim	4	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Lacrim	4	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Zygomat	4	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Zygomat	4	2	100	100	2	5	40	2	2	*	2	1	1	2
36.1	I Conch	4	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	I Conch	4	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Frontal	3	*	95	95	2	5	40	2	2	*	2	1	1	2
36.1	Occipit	3	*	80	80	2	5	40	2	2	*	2	1	1	2
36.1	Ethmoid	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Vomer	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Sphen	4	*	15	15	2	5	40	2	2	*	2	1	1	2
36.1	Hyoid	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Mand	5	*	70	35	2	5	40	2	2	*	2	1	1	2
36.1	Ribs	3	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Ribs	3	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Sternum	3	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	C Vert	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	T Vert	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	L Vert	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Sacrum	3	*	35	0.95	2	5	40	2	2	*	2	1	1	2
36.1	Coccyx	4	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Clavic	1	*	30	0.81	2	5	40	2	2	*	2	1	1	2
36.1	Clavic	1	*	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Scapula	3	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Scapula	3	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Humerus	1	1	85	17	1	5	40	2	2	*	2	1	1	2
36.1	Humerus	1	2	65	1.67	1	5	40	2	2	*	2	1	1	2
36.1	Radius	1	1	50	5.56	1	5	40	2	2	*	2	1	1	2
36.1	Radius	1	2	2.5	0.11	1	5	40	2	2	*	2	1	1	2
36.1	Ulna	1	1	65	1.67	1	5	40	2	2	*	2	1	1	2
36.1	Ulna	1	2	2.5	0.11	1	5	40	2	2	*	2	1	1	2
36.1	Carpals	4	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Carpals	4	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MC	2	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MC	2	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MP Phal	2	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MP Phal	2	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MI Phal	2	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MI Phal	2	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MD Phal	2	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	MD Phal	2	2	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Ilium	3	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Ilium	3	2	50	3.57	2	5	40	2	2	*	2	1	1	2
36.1	Ischium	3	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Ischium	3	2	50	3.85	2	5	40	2	2	*	2	1	1	2
36.1	Pubis	3	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Pubis	3	2	50	3.85	2	5	40	2	2	*	2	1	1	2
36.1	Femur	1	1	80	20	2	5	40	2	2	*	2	1	1	2
36.1	Femur	1	2	85	1.73	2	5	40	2	2	*	2	1	1	2
36.1	Tibia	1	1	85	5.31	2	5	40	2	2	*	2	1	1	2
36.1	Tibia	1	2	80	1.95	2	5	40	2	2	*	2	1	1	2

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
36.1	Fibula	1	1	0	*	*	5	40	*	2	*	2	1	1	2
36.1	Fibula	1	2	80	16	2	5	40	2	2	*	2	1	1	2
36.1	Patella	4	1	60	30	2	5	40	2	2	*	2	1	1	2
36.1	Patella	4	2	50	5.56	2	5	40	2	2	*	2	1	1	2
36.1	Calcan	4	1	20	20	2	5	40	2	2	*	2	1	1	2
36.1	Calcan	4	2	85	12.14	2	5	40	2	2	*	2	1	1	2
36.1	Talus	4	1	65	65	2	5	40	2	2	*	2	1	1	2
36.1	Talus	4	2	95	95	2	5	40	2	2	*	2	1	1	2
36.1	Tarsals	4	1	14	70	2	5	40	2	2	*	2	1	1	2
36.1	Tarsals	4	2	77	77	2	5	40	2	2	*	2	1	1	2
36.1	MT	2	1	5	25	2	5	40	2	2	*	2	1	1	2
36.1	MT	2	2	16	40	2	5	40	2	2	*	2	1	1	2
36.1	PP Phal	2	*	80	100	2	5	40	2	2	*	2	1	1	2
36.1	PI Phal	2	*	62.5	100	2	5	40	2	2	*	2	1	1	2
36.1	PD Phal	2	*	70	100	2	5	40	2	2	*	2	1	1	2
36.2	Pariet	3	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Pariet	3	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Tempor	3	1	35	35	2	2	40	2	2	1	2	1	1	1
36.2	Tempor	3	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Maxilla	4	1	2.5	0.5	2	2	40	2	2	1	2	1	1	1
36.2	Maxilla	4	2	2.5	0.5	2	2	40	2	2	1	2	1	1	1
36.2	Palat	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Palat	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Nasal	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Nasal	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Lacrim	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Lacrim	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Zygomat	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Zygomat	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	I Conch	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	I Conch	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Frontal	3	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Occipit	3	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Ethmoid	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Vomer	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Sphen	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Hyoid	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Mand	5	*	65	2.6	2	2	40	2	2	1	2	1	1	1
36.2	Ribs	3	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Ribs	3	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Sternum	3	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	C Vert	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	T Vert	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	L Vert	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Sacrum	3	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Coccyx	4	*	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Clavic	1	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Clavic	1	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Scapula	3	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Scapula	3	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Humerus	1	1	60	2.86	2	2	40	2	2	1	2	1	1	1
36.2	Humerus	1	2	15	0.58	1	2	40	2	2	1	2	1	1	1
36.2	Radius	1	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Radius	1	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Ulna	1	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Ulna	1	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Carpals	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Carpals	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MC	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MC	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MP Phal	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MP Phal	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MI Phal	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MI Phal	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MD Phal	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MD Phal	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Ilium	3	1	5	0.38	1	2	40	2	2	1	2	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
36.2	Ilium	3	2	5	0.38	1	2	40	2	2	1	2	1	1	1
36.2	Ischium	3	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Ischium	3	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Pubis	3	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Pubis	3	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Femur	1	1	30	0.32	1	2	40	2	2	1	2	1	1	1
36.2	Femur	1	2	40	1.54	1	2	40	2	2	1	2	1	1	1
36.2	Tibia	1	1	65	16.25	1	2	40	2	2	1	2	1	1	1
36.2	Tibia	1	2	60	15	1	2	40	2	2	1	2	1	1	1
36.2	Fibula	1	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Fibula	1	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Patella	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Patella	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Calcan	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Calcan	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Talus	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Talus	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Tarsals	4	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	Tarsals	4	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MT	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	MT	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	PP Phal	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	PP Phal	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	PI Phal	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	PI Phal	2	2	0	*	*	2	40	*	2	1	2	1	1	1
36.2	PD Phal	2	1	0	*	*	2	40	*	2	1	2	1	1	1
36.2	PD Phal	2	2	0	*	*	2	40	*	2	1	2	1	1	1
37.1	Pariet	3	1	55	11	1	3	38	2	1	1	3	1	1	1
37.1	Pariet	3	2	40	0.7	1	3	38	1	1	1	3	1	1	1
37.1	Tempor	3	1	70	7	1	3	38	1	1	1	3	1	1	1
37.1	Tempor	3	2	45	1.96	1	3	38	2	1	1	3	1	1	1
37.1	Maxilla	4	1	60	3.33	1	3	38	2	1	1	3	1	1	1
37.1	Maxilla	4	2	15	0.17	1	3	38	2	1	1	3	1	1	1
37.1	Palat	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Palat	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Nasal	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Nasal	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Lacrim	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Lacrim	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Zygomat	4	1	40	40	1	3	38	2	1	1	3	1	1	1
37.1	Zygomat	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	I Conch	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	I Conch	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Frontal	3	*	40	1.6	1	3	38	1	1	1	3	1	1	1
37.1	Occipit	3	*	30	1.2	1	3	38	2	1	1	3	1	1	1
37.1	Ethmoid	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Vomer	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Sphen	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Hyoid	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Mand	5	*	70	0.8	1	3	38	2	1	1	3	1	1	1
37.1	Ribs	3	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Ribs	3	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Sternum	3	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	C Vert	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	T Vert	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	L Vert	4	*	7	3.5	1	3	38	2	1	1	3	1	1	1
37.1	Sacrum	3	*	15	0.3	1	3	38	2	1	1	3	1	1	1
37.1	Coccyx	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Clavic	1	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Clavic	1	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Scapula	3	1	30	1.07	1	3	38	2	1	1	3	1	1	1
37.1	Scapula	3	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Humerus	1	1	85	5	1	3	38	2	1	1	3	1	1	1
37.1	Humerus	1	2	50	4.55	1	3	38	2	1	1	3	1	1	1
37.1	Radius	1	1	2.5	0.5	1	3	38	2	1	1	3	1	1	1
37.1	Radius	1	2	45	2.14	1	3	38	2	1	1	3	1	1	1
37.1	Ulna	1	1	2.5	0.5	1	3	38	2	1	1	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
37.1	Ulna	1	2	40	2	1	3	38	2	1	1	3	1	1	1
37.1	Carpals	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Carpals	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MC	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MC	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MP Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MP Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MI Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MI Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MD Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MD Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Ilium	3	1	35	2.92	1	3	38	2	1	1	3	1	1	1
37.1	Ilium	3	2	30	1.15	1	3	38	2	1	1	3	1	1	1
37.1	Ischium	3	1	35	2.92	1	3	38	2	1	1	3	1	1	1
37.1	Ischium	3	2	30	1.15	1	3	38	2	1	1	3	1	1	1
37.1	Pubis	3	1	35	2.92	1	3	38	2	1	1	3	1	1	1
37.1	Pubis	3	2	30	1.15	1	3	38	2	1	1	3	1	1	1
37.1	Femur	1	1	85	6.54	1	3	38	2	1	1	3	1	1	1
37.1	Femur	1	2	95	1.64	1	3	38	2	1	1	3	1	1	1
37.1	Tibia	1	1	70	3.04	1	3	38	2	1	1	3	1	1	1
37.1	Tibia	1	2	80	2.76	1	3	38	2	1	1	3	1	1	1
37.1	Fibula	1	1	70	3.89	1	3	38	2	1	1	3	1	1	1
37.1	Fibula	1	2	75	5.77	1	3	38	2	1	1	3	1	1	1
37.1	Patella	4	1	25	25	1	3	38	2	1	1	3	1	1	1
37.1	Patella	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Calcan	4	1	40	40	1	3	38	2	1	1	3	1	1	1
37.1	Calcan	4	2	40	40	1	3	38	2	1	1	3	1	1	1
37.1	Talus	4	1	65	65	1	3	38	2	1	1	3	1	1	1
37.1	Talus	4	2	75	75	1	3	38	2	1	1	3	1	1	1
37.1	Tarsals	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	Tarsals	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MT	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	MT	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	PP Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	PP Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	PI Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	PI Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.1	PD Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.1	PD Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Pariet	3	1	90	10	1	3	38	2	1	1	3	1	1	1
37.2	Pariet	3	2	80	0.78	1	3	38	1	1	1	3	1	1	1
37.2	Tempor	3	1	65	10.83	1	3	38	2	1	1	3	1	1	1
37.2	Tempor	3	2	50	3.57	1	3	38	2	1	1	3	1	1	1
37.2	Maxilla	4	1	35	3.5	1	3	38	2	1	1	3	1	1	1
37.2	Maxilla	4	2	45	2.81	1	3	38	2	1	1	3	1	1	1
37.2	Palat	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Palat	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Nasal	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Nasal	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Lacrim	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Lacrim	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Zygomat	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Zygomat	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	I Conch	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	I Conch	4	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Frontal	3	*	80	0.91	1	3	38	2	1	1	3	1	1	1
37.2	Occipit	3	*	75	5.36	1	3	38	2	1	1	3	1	1	1
37.2	Ethmoid	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Vomer	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Sphen	4	*	70	7	1	3	38	2	1	1	3	1	1	1
37.2	Hyoid	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Mand	5	*	85	17	1	3	38	2	1	1	3	1	1	1
37.2	Ribs	3	1	7.08	42.5	1	3	38	2	1	1	3	1	1	1
37.2	Ribs	3	2	7.08	85	1	3	38	2	1	1	3	1	1	1
37.2	Sternum	3	*	0	*	*	3	38	*	1	1	3	1	1	1
37.2	C Vert	4	*	22.14	19.38	1	3	38	2	1	1	3	1	1	1
37.2	T Vert	4	*	0	*	*	3	38	*	1	1	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
37.2	L Vert	4	*	25.5	4.55	1	3	38	2	1	1	3	1	1	1
37.2	Sacrum	3	*	35	17.5	1	3	38	2	1	1	3	1	1	1
37.2	Coccyx	4	*	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Clavic	1	1	90	30	1	3	38	2	1	1	3	1	1	1
37.2	Clavic	1	2	60	15	1	3	38	2	1	1	3	1	1	1
37.2	Scapula	3	1	15	1.25	1	3	38	2	1	1	3	1	1	1
37.2	Scapula	3	2	15	0.6	1	3	38	2	1	1	3	1	1	1
37.2	Humerus	1	1	75	5	1	3	38	2	1	1	3	1	1	1
37.2	Humerus	1	2	65	3.42	1	3	38	2	1	1	3	1	1	1
37.2	Radius	1	1	65	21.67	1	3	38	2	1	1	3	1	1	1
37.2	Radius	1	2	85	42.5	1	3	38	2	1	1	3	1	1	1
37.2	Ulna	1	1	5	0.24	1	3	38	2	1	1	3	1	1	1
37.2	Ulna	1	2	70	7.78	1	3	38	2	1	1	3	1	1	1
37.2	Carpals	4	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Carpals	4	2	70	93.33	1	3	38	2	1	1	3	1	1	1
37.2	MC	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MC	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MP Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MP Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MI Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MI Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MD Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	MD Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Ilium	3	1	45	1.8	1	3	38	2	1	1	3	1	1	1
37.2	Ilium	3	2	10	0.77	1	3	38	2	1	1	3	1	1	1
37.2	Ischium	3	1	15	5	1	3	38	2	1	1	3	1	1	1
37.2	Ischium	3	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	Pubis	3	1	35	17.5	1	3	38	2	1	1	3	1	1	1
37.2	Pubis	3	2	25	2.27	1	3	38	2	1	1	3	1	1	1
37.2	Femur	1	1	95	5.28	1	3	38	2	1	1	3	1	1	1
37.2	Femur	1	2	70	2.92	1	3	38	2	1	1	3	1	1	1
37.2	Tibia	1	1	70	4.38	1	3	38	2	1	1	3	1	1	1
37.2	Tibia	1	2	45	1.73	1	3	38	2	1	1	3	1	1	1
37.2	Fibula	1	1	50	2.08	1	3	38	2	1	1	3	1	1	1
37.2	Fibula	1	2	25	3.57	1	3	38	2	1	1	3	1	1	1
37.2	Patella	4	1	90	90	1	3	38	2	1	1	3	1	1	1
37.2	Patella	4	2	40	40	1	3	38	2	1	1	3	1	1	1
37.2	Calcan	4	1	45	22.5	1	3	38	2	1	1	3	1	1	1
37.2	Calcan	4	2	35	11.67	1	3	38	2	1	1	3	1	1	1
37.2	Talus	4	1	90	90	1	3	38	2	1	1	3	1	1	1
37.2	Talus	4	2	60	10	1	3	38	2	1	1	3	1	1	1
37.2	Tarsals	4	1	90	75	1	3	38	2	1	1	3	1	1	1
37.2	Tarsals	4	2	8	40	1	3	38	2	1	1	3	1	1	1
37.2	MT	2	1	58	29	1	3	38	2	1	1	3	1	1	1
37.2	MT	2	2	3	1	1	3	38	2	1	1	3	1	1	1
37.2	PP Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	PP Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	PI Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	PI Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.2	PD Phal	2	1	0	*	*	3	38	*	1	1	3	1	1	1
37.2	PD Phal	2	2	0	*	*	3	38	*	1	1	3	1	1	1
37.3	Pariet	3	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Pariet	3	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Tempor	3	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Tempor	3	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Maxilla	4	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Maxilla	4	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Palat	4	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Palat	4	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Nasal	4	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Nasal	4	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Lacrim	4	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Lacrim	4	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Zygomat	4	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	Zygomat	4	2	0	*	*	1	38	*	1	*	3	1	1	1
37.3	I Conch	4	1	0	*	*	1	38	*	1	*	3	1	1	1
37.3	I Conch	4	2	0	*	*	1	38	*	1	*	3	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
37.3	Frontal	3	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Occipit	3	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ethmoid	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Vomer	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Sphen	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Hyoid	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Mand	5	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ribs	3	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ribs	3	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Sternum	3	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	C Vert	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	T Vert	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	L Vert	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Sacrum	3	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Coccyx	4	•	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Clavic	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Clavic	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Scapula	3	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Scapula	3	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Humerus	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Humerus	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Radius	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Radius	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ulna	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ulna	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Carpals	4	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Carpals	4	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MC	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MC	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MP Phal	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MP Phal	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MI Phal	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MI Phal	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MD Phal	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MD Phal	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ilium	3	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ilium	3	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ischium	3	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Ischium	3	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Pubis	3	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Pubis	3	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Femur	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Femur	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Tibia	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Tibia	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Fibula	1	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Fibula	1	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Patella	4	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Patella	4	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Calcan	4	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Calcan	4	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Talus	4	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Talus	4	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Tarsals	4	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	Tarsals	4	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MT	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	MT	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	PP Phal	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	PP Phal	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	PI Phal	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	PI Phal	2	2	0	•	•	1	38	•	1	•	3	1	1	1
37.3	PD Phal	2	1	0	•	•	1	38	•	1	•	3	1	1	1
37.3	PD Phal	2	2	0	•	•	1	38	•	1	•	3	1	1	1
38	Pariet	3	1	0	•	•	5	48	•	1	1	1	1	1	1
38	Pariet	3	2	0	•	•	5	48	•	1	1	1	1	1	1
38	Tempor	3	1	40	20	2	5	48	2	1	1	1	1	1	1
38	Tempor	3	2	60	30	2	5	48	1	1	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
38	Maxilla	4	1	27.5	2.75	2	5	48	2	1	1	1	1	1	1
38	Maxilla	4	2	27.5	2.75	2	5	48	2	1	1	1	1	1	1
38	Palat	4	1	0	*	*	5	48	*	1	1	1	1	1	1
38	Palat	4	2	0	*	*	5	48	*	1	1	1	1	1	1
38	Nasal	4	1	0	*	*	5	48	*	1	1	1	1	1	1
38	Nasal	4	2	0	*	*	5	48	*	1	1	1	1	1	1
38	Lacrim	4	1	0	*	*	5	48	*	1	1	1	1	1	1
38	Lacrim	4	2	0	*	*	5	48	*	1	1	1	1	1	1
38	Zygomat	4	1	100	100	2	5	48	2	1	1	1	1	1	1
38	Zygomat	4	2	85	85	2	5	48	2	1	1	1	1	1	1
38	I Conch	4	1	0	*	*	5	48	*	1	1	1	1	1	1
38	I Conch	4	2	0	*	*	5	48	*	1	1	1	1	1	1
38	Frontal	3	*	80	16	2	5	48	1	1	1	1	1	1	1
38	Occipit	3	*	20	20	2	5	48	1	1	1	1	1	1	1
38	Ethmoid	4	*	0	*	*	5	48	*	1	1	1	1	1	1
38	Vomer	4	*	0	*	*	5	48	*	1	1	1	1	1	1
38	Sphen	4	*	0	*	*	5	48	*	1	1	1	1	1	1
38	Hyoid	4	*	0	*	*	5	48	*	1	1	1	1	1	1
38	Mand	5	*	70	4.12	1	5	48	2	1	1	1	1	1	1
38	Ribs	3	1	0	*	*	5	48	*	1	1	1	1	1	1
38	Ribs	3	2	6.25	15	1	5	48	2	1	1	1	1	1	1
38	Sternum	3	*	0	*	*	5	48	*	1	1	1	1	1	1
38	C Vert	4	*	4.29	2.72	1	5	48	2	1	1	1	1	1	1
38	T Vert	4	*	0	*	*	5	48	*	1	1	1	1	1	1
38	L Vert	4	*	5	1.04	1	5	48	2	1	1	1	1	1	1
38	Sacrum	3	*	35	1.03	1	5	48	2	1	1	1	1	1	1
38	Coccyx	4	*	0	*	*	5	48	*	1	1	1	1	1	1
38	Clavic	1	1	75	8.33	2	5	48	2	1	1	1	1	1	1
38	Clavic	1	2	0	*	*	5	48	*	1	1	1	1	1	1
38	Scapula	3	1	0	*	*	5	48	*	1	1	1	1	1	1
38	Scapula	3	2	20	0.56	1	5	48	2	1	1	1	1	1	1
38	Humerus	1	1	65	1.14	1	5	48	2	1	1	1	1	1	1
38	Humerus	1	2	80	13.33	1	5	48	2	1	1	1	1	1	1
38	Radius	1	1	60	1.88	1	5	48	2	1	1	1	1	1	1
38	Radius	1	2	75	5.77	1	5	48	2	1	1	1	1	1	1
38	Ulna	1	1	70	5.38	1	5	48	2	1	1	1	1	1	1
38	Ulna	1	2	90	45	1	5	48	2	1	1	1	1	1	1
38	Carpals	4	1	8.75	70	1	5	48	2	1	1	1	1	1	1
38	Carpals	4	2	41.25	82.5	1	5	48	2	1	1	1	1	1	1
38	MC	2	1	36	90	1	5	48	2	1	1	1	1	1	1
38	MC	2	2	0	*	*	5	48	*	1	1	1	1	1	1
38	MP Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
38	MP Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
38	MI Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
38	MI Phal	2	2	25	100	1	5	48	2	1	1	1	1	1	1
38	MD Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
38	MD Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
38	Ilium	3	1	40	1.43	1	5	48	2	1	1	1	1	1	1
38	Ilium	3	2	95	1.58	1	5	48	2	1	1	1	1	1	1
38	Ischium	3	1	55	2.04	1	5	48	2	1	1	1	1	1	1
38	Ischium	3	2	15	1.07	1	5	48	2	1	1	1	1	1	1
38	Pubis	3	1	20	0.74	1	5	48	2	1	1	1	1	1	1
38	Pubis	3	2	15	1.07	1	5	48	2	1	1	1	1	1	1
38	Femur	1	1	90	3.9	1	5	48	2	1	1	1	1	1	1
38	Femur	1	2	90	11.25	1	5	48	2	1	1	1	1	1	1
38	Tibia	1	1	75	1.42	1	5	48	2	1	1	1	1	1	1
38	Tibia	1	2	90	2.9	1	5	48	2	1	1	1	1	1	1
38	Fibula	1	1	85	10.63	1	5	48	2	1	1	1	1	1	1
38	Fibula	1	2	80	6.67	1	5	48	2	1	1	1	1	1	1
38	Patella	4	1	0	*	*	5	48	*	1	1	1	1	1	1
38	Patella	4	2	40	20	1	5	48	2	1	1	1	1	1	1
38	Calcan	4	1	30	4.29	1	5	48	2	1	1	1	1	1	1
38	Calcan	4	2	40	20	1	5	48	2	1	1	1	1	1	1
38	Talus	4	1	85	85	1	5	48	2	1	1	1	1	1	1
38	Talus	4	2	90	90	1	5	48	2	1	1	1	1	1	1
38	Tarsals	4	1	72	60	1	5	48	2	1	1	1	1	1	1
38	Tarsals	4	2	9	45	1	5	48	2	1	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
38	MT	2	1	83	69.17	1	5	48	2	1	1	1	1	1	1
38	MT	2	2	0	*	*	5	48	*	1	1	1	1	1	1
38	PP Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
38	PP Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
38	PI Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
38	PI Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
38	PD Phal	2	1	0	*	*	5	48	*	1	1	1	1	1	1
38	PD Phal	2	2	0	*	*	5	48	*	1	1	1	1	1	1
39	Pariet	3	1	40	5	1	2	36	2	2	1	1	1	1	1
39	Pariet	3	2	90	5.29	1	2	36	2	2	1	1	1	1	1
39	Tempor	3	1	35	17.5	1	2	36	2	2	1	1	1	1	1
39	Tempor	3	2	60	60	1	2	36	2	2	1	1	1	1	1
39	Maxilla	4	1	5	0.31	1	2	36	2	2	1	1	1	1	1
39	Maxilla	4	2	5	0.31	1	2	36	2	2	1	1	1	1	1
39	Palat	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Palat	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Nasal	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Nasal	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Lacrim	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Lacrim	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Zygomat	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Zygomat	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	I Conch	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	I Conch	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Frontal	3	*	75	1.5	1	2	36	2	2	1	1	1	1	1
39	Occipit	3	*	70	1.63	1	2	36	2	2	1	1	1	1	1
39	Ethmoid	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Vomer	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Sphen	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Hyoid	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Mand	5	*	45	0.66	1	2	36	2	2	1	1	1	1	1
39	Ribs	3	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Ribs	3	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Sternum	3	*	0	*	*	2	36	*	2	1	1	1	1	1
39	C Vert	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	T Vert	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	L Vert	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Sacrum	3	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Coccyx	4	*	0	*	*	2	36	*	2	1	1	1	1	1
39	Clavic	1	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Clavic	1	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Scapula	3	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Scapula	3	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Humerus	1	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Humerus	1	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Radius	1	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Radius	1	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Ulna	1	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Ulna	1	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Carpals	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Carpals	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	MC	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	MC	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	MP Phal	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	MP Phal	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	MI Phal	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	MI Phal	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	MD Phal	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	MD Phal	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Ilium	3	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Ilium	3	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Ischium	3	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Ischium	3	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Pubis	3	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Pubis	3	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Femur	1	1	50	1.02	1	2	36	2	2	1	1	1	1	1
39	Femur	1	2	60	1.28	1	2	36	2	2	1	1	1	1	1

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
39	Tibia	1	1	60	3.75	1	2	36	2	2	1	1	1	1	1
39	Tibia	1	2	65	1.3	1	2	36	2	2	1	1	1	1	1
39	Fibula	1	1	10	0.71	1	2	36	2	2	1	1	1	1	1
39	Fibula	1	2	5	1	1	2	36	2	2	1	1	1	1	1
39	Patella	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Patella	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Calcan	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Calcan	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Talus	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Talus	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	Tarsals	4	1	0	*	*	2	36	*	2	1	1	1	1	1
39	Tarsals	4	2	0	*	*	2	36	*	2	1	1	1	1	1
39	MT	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	MT	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	PP Phal	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	PP Phal	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	PI Phal	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	PI Phal	2	2	0	*	*	2	36	*	2	1	1	1	1	1
39	PD Phal	2	1	0	*	*	2	36	*	2	1	1	1	1	1
39	PD Phal	2	2	0	*	*	2	36	*	2	1	1	1	1	1
40	Pariet	3	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Pariet	3	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Tempor	3	1	60	30	1	1	32	2	2	*	1	1	1	*
40	Tempor	3	2	55	55	1	1	32	2	2	*	1	1	1	*
40	Maxilla	4	1	10	1.25	1	1	32	2	2	*	1	1	1	*
40	Maxilla	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Palat	4	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Palat	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Nasal	4	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Nasal	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Lacrim	4	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Lacrim	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Zygomat	4	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Zygomat	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	I Conch	4	1	0	*	*	1	32	*	2	*	1	1	1	*
40	I Conch	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Frontal	3	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Occipit	3	*	15	7.5	1	1	32	2	2	*	1	1	1	*
40	Ethmoid	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Vomer	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Sphen	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Hyoid	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Mand	5	*	80	11.43	1	1	32	2	2	*	1	1	1	*
40	Ribs	3	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Ribs	3	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Sternum	3	*	0	*	*	1	32	*	2	*	1	1	1	*
40	C Vert	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	T Vert	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	L Vert	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Sacrum	3	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Coccyx	4	*	0	*	*	1	32	*	2	*	1	1	1	*
40	Clavic	1	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Clavic	1	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Scapula	3	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Scapula	3	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Humerus	1	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Humerus	1	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Radius	1	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Radius	1	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Ulna	1	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Ulna	1	2	0	*	*	1	32	*	2	*	1	1	1	*
40	Carpals	4	1	0	*	*	1	32	*	2	*	1	1	1	*
40	Carpals	4	2	0	*	*	1	32	*	2	*	1	1	1	*
40	MC	2	1	0	*	*	1	32	*	2	*	1	1	1	*
40	MC	2	2	0	*	*	1	32	*	2	*	1	1	1	*
40	MP Phal	2	1	0	*	*	1	32	*	2	*	1	1	1	*
40	MP Phal	2	2	0	*	*	1	32	*	2	*	1	1	1	*

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	De	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
40	MI Phal	2	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	MI Phal	2	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	MD Phal	2	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	MD Phal	2	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Ilium	3	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Ilium	3	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Ischium	3	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Ischium	3	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Pubis	3	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Pubis	3	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Femur	1	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Femur	1	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Tibia	1	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Tibia	1	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Fibula	1	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Fibula	1	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Patella	4	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Patella	4	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Calcan	4	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Calcan	4	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Talus	4	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Talus	4	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Tarsals	4	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	Tarsals	4	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	MT	2	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	MT	2	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	PP Phal	2	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	PP Phal	2	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	PI Phal	2	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	PI Phal	2	2	0	•	•	1	3	32	•	2	•	1	1	1	•
40	PD Phal	2	1	0	•	•	1	3	32	•	2	•	1	1	1	•
40	PD Phal	2	2	0	•	•	1	3	32	•	2	•	1	1	1	•
41	Pariet	3	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Pariet	3	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Tempor	3	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Tempor	3	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Maxilla	4	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Maxilla	4	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Palat	4	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Palat	4	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Nasal	4	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Nasal	4	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Lacrim	4	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Lacrim	4	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Zygomat	4	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Zygomat	4	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	I Conch	4	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	I Conch	4	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Frontal	3	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Occipit	3	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Ethmoid	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Vomer	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Sphen	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Hyoid	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Mand	5	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Ribs	3	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Ribs	3	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Sternum	3	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	C Vert	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	T Vert	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	L Vert	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Sacrum	3	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Coccyx	4	•	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Clavic	1	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Clavic	1	2	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Scapula	3	1	0	•	•	•	3	38	•	2	•	1	1	1	•
41	Scapula	3	2	0	•	•	•	3	38	•	2	•	1	1	1	•

Burial	Element	EType	Side	Compl	FRatio	Artic	Age	Depth	Cha	Bark	BPos	BType	BdRk	Distur	Integ
41	Humerus	1	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Humerus	1	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Radius	1	*	5	0.13	2	*	38	1	2	*	1	1	1	*
41	Radius	1	*	0	*	*	*	38	*	2	*	1	1	1	*
41	Ulna	1	*	5	0.13	2	*	38	1	2	*	1	1	1	*
41	Ulna	1	*	0	*	*	*	38	*	2	*	1	1	1	*
41	Carpals	4	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Carpals	4	2	0	*	*	*	38	*	2	*	1	1	1	*
41	MC	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	MC	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	MP Phal	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	MP Phal	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	MI Phal	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	MI Phal	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	MD Phal	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	MD Phal	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Ilium	3	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Ilium	3	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Ischium	3	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Ischium	3	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Pubis	3	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Pubis	3	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Femur	1	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Femur	1	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Tibia	1	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Tibia	1	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Fibula	1	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Fibula	1	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Patella	4	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Patella	4	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Calcan	4	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Calcan	4	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Talus	4	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Talus	4	2	0	*	*	*	38	*	2	*	1	1	1	*
41	Tarsals	4	1	0	*	*	*	38	*	2	*	1	1	1	*
41	Tarsals	4	2	0	*	*	*	38	*	2	*	1	1	1	*
41	MT	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	MT	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	PP Phal	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	PP Phal	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	PI Phal	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	PI Phal	2	2	0	*	*	*	38	*	2	*	1	1	1	*
41	PD Phal	2	1	0	*	*	*	38	*	2	*	1	1	1	*
41	PD Phal	2	2	0	*	*	*	38	*	2	*	1	1	1	*

*** Missing Data**

EType (Element Type): **1** Long Bone; **2** Short Bone; **3** Flat Bone; **4** Irregular Bone; **5** Mandible (Exception)

Side: **1** Left; **2** Right

Compl (Completeness): Percentage Complete

FRatio (Fragmentation Ratio): [Percentage Complete/Total Number of Fragments] x Number of Elements Within Group

Artic (Articulation): **1** Completely Articulated; **2** Disarticulated

Age (Individual Age at Death): **1** Infant; **2** Child; **3** Adolescent; **4** Young Adult; **5** Middle Adult; **6** Old Adult; **7** 'Adult'

Depth (Burial Depth): Distance in cm from Ground Surface

Char (Element Charring): **1** Charred; **2** Uncharred

Bark (Presence of Birch Bark): **1** Present; **2** Absent

BPos (Body Position): **1** Extended and Supine; **2** Semi-flexed

BType (Burial Type): **1** Single; **2** Double; **3** Triple

BdRk (Distance Between the Burial and Underlying Bedrock): **1** 0-5 cm; **2** 5-10 cm

Distur (Disturbance): **1** Undisturbed; **2** Disturbed

Integ (Integrity): **1** Primary; **2** Secondary